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- "Improved Type of Multiple-Arch Dams." FRED A. NOETZLI.
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OF THE

AMERICAN SOCIETY

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(INSTITUTED 1852)

VOL. XLIX—No. 6.

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American Society of Civil Engineers

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ON STUDENT CHAPTERS: Anson Marston, Arthur J. Dyer, E. B. Whitman.

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TO CODIFY PRESENT PRACTICE ON THE BEARING VALUE OF SOILS FOR FOUNDATIONS, ETC.: Robert A. Cummings, Walter J. Douglas, E. G. Haines, Allen Hazen, James C. Meem, George Paaswell.

ON STRESSES IN RAILROAD TRACK: A. N. Talbot, G. H. Bremner, John Brunner, W. J. Burton, Charles S. Churchill, W. C. Cushing, W. M. Dawley, H. E. Hale, J. B. Jenkins, George W. Kittredge, Paul M. LaBach, C. G. E. Larsson, G. J. Ray, Albert F. Reichmann, H. R. Safford, Earl Stimson, F. E. Turneure, J. E. Willoughby.

ON HIGHWAY ENGINEERING: H. Eltinge Breed, George W. Tillson, A. R. Fletcher, John M. Goodell.

ON BRIDGE DESIGN AND CONSTRUCTION: Henry B. Seaman, J. H. Ames, Victor H. Cochrane, J. E. Greiner, C. R. Harding, Otis E. Hovey, C. W. Hudson, E. F. Kelley, M. S. Ketchum, S. B. Slack, I. F. Stern.

ON STANDARD CONSTRUCTION CONTRACTS: J. S. Langthorn, H. Eltinge Breed, J. H. Brillhart, Edward H. Lee, Hunter McDonald, George H. Pegram, Henry H. Quimby.

ON CONCRETE AND REINFORCED CONCRETE ARCHES: C. T. Morris, G. E. Beggs, J. R. Chamberlin, E. H. Harder, A. C. Janni, W. M. Wilson.

ON ELECTRIFICATION OF STEAM RAILWAYS: Charles F. Loweth, Blon J. Arnold, George Gibbs, George W. Kittredge, E. J. Pearson, Samuel Rea, Robert Ridgway.

ON STRESSES IN STRUCTURAL STEEL: F. O. Dufour, Clement E. Chase, O. F. Dalstrom, J. H. Edwards, R. J. Fogg, F. M. Masters, L. D. Rights, F. E. Schmitt, W. J. Thomas.

ON IMPACT IN HIGHWAY BRIDGES: A. H. Fuller, A. R. Eitzen, E. F. Kelley, F. E. Turneure.

ON FLOOD-PROTECTION DATA: N. C. Grover, C. B. Burdick, W. P. Creager, H. P. Eddy, Gerard H. Matthes, Charles H. Paul, A. O. Ridgway.

ON IRRIGATION HYDRAULICS: D. C. Henny, W. F. Allison, B. A. Etcheverry, Samuel Fortier, R. L. Parshall, J. L. Savage, F. C. Scobey, Stuart Sims, J. C. Stevens, Franklin Thomas.

ON HYDRAULICS PHENOMENA: S. M. Woodward, M. L. Enger, R. E. Horton, A. T. Safford, E. W. Schoder.

ON FIRE PREVENTION OF DOCKS, PIERS, AND WHARVES: Benjamin Thompson, J. F. Coleman, Rudolph P. Miller, W. Watters Pagon, John Stephen Sewell.

ALFRED NOBLE MEMORIAL COMMITTEE: Samuel Rea, Blon J. Arnold, Onward Bates, J. Vipond Davies, George Gibbs, William W. Harts, S. H. Hedges, J. W. Lieb, F. H. Newell, Robert Ridgway, J. Waldo Smith.

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Items of Interest*

Suggestions for New Technical Divisions

The following tabulation shows the number of letters received suggesting new Technical Divisions, and the titles that would embody the subjects mentioned:

Number.	Name of Division.	Number.	Name of Division.
36.....	Harbors and Waterways	1.....	Public Relations
13.....	Drainage	1.....	Engineering Economics
1.....	Forest Products	1.....	Organization and Management
1.....	Problem of Combustibles	2.....	Financial Engineering
1.....	Devastation of the Forests	6.....	Valuation
19.....	City Planning	3.....	Rapid Transit
20.....	Water and Water Supply	4.....	Public Utilities Regulation
1.....	Dams	5.....	Petroleum Engineering
4.....	Hydraulic	1.....	Research
5.....	Municipal Engineering	1.....	Sales Engineering
1.....	Garbage Disposal	11.....	Transportation
1.....	Sewerage	32.....	Railroad
1.....	Gas Engineering	1.....	Refrigeration
7.....	Bridge Engineering	2.....	Education
117.....	Structural	2.....	Surveying
1.....	Fire Prevention	1.....	Textile
1.....	Water-Proofing	1.....	Mining
6.....	Industrial Engineering	1.....	Consulting Engineers
2.....	Military		

* Members are urged to contribute items of general interest.

A City Planning Division was authorized by the Board of Direction at Chicago, July 10, 1923. Water and Water Supply, Garbage Disposal, and Sewerage, are already provided for by the Sanitary Engineering Division.

Certain other suggestions are also provided by the four Technical Divisions that have already been organized, namely, Highway Engineering, Irrigation Engineering, Power, and Sanitary Engineering.

A Technical Division may be organized, by the action of the Board of Direction, for the consideration of any engineering, scientific, or professional subject, provided that not less than 20 members of the Society unite in making written request for such an organization.

Alfred Noble Memorial

As a tribute by the Engineering Profession to the life and memory of the late Alfred Noble, Past-President, Am. Soc. C. E., a Memorial Fountain is to be erected in Rawlins Square, Washington, D. C.

The Board of Direction has set aside the sum of \$1 000 as a first subscription toward the necessary funds, and appointed a Committee with power to carry out this project.

It is estimated the Fountain Memorial will cost \$100 000, and the Committee extends an invitation to all members of the Society to co-operate by subscribing to the Memorial Fund, through its Secretary-Treasurer, Robert Ridgway, M. Am. Soc. C. E., 49 Lafayette St., New York, N. Y.

Washington Award for 1922 Conferred on Robert W. Hunt*

The Washington Award, founded in 1915 by John W. Alvord, M. Am. Soc. C. E., and administered by the Western Society of Engineers, is awarded annually in the form of a bronze medal or other work of art to "an Engineer whose work in some special instance, or whose services in general have been noteworthy for their merits in promoting the public good."

The Commission of Award consists of nine members of the Western Society of Engineers and two members from each of the Founder Societies.

The Award for 1922 has been conferred on Robert Woolston Hunt, M. Am. Soc. C. E., for his pioneer work in the development of the steel industry in the United States and for a life devoted to the advancement of the Engineering Profession.

Changes in Definitions

The attention of members is called to the minutes of the April Meeting of the Board of Direction, as published on page 383 of this number of *Proceedings*, giving the new definitions of sub-professional work, professional work, and responsible charge, to be used in connection with applications for membership in the Society.

Seventy-Fifth Anniversary of Societe des Ingenieurs Civils de France

On Friday evening, May 4, 1923, the four Founder Societies and the American Section of Société des Ingénieurs Civils de France, held a meeting

* Mr. Hunt died on July 11, 1923.

in Engineering Societies Building to celebrate the Seventy-fifth Anniversary of the founding of the French Society.

Mr. Harrington Emerson, President of the American Section, Société des Ingénieurs Civils de France, delivered the address of welcome, to which His Excellency, Gaston Liebert, Ministre Plenipotentiaire, replied. Other speakers were Messrs. Arthur S. Dwight, William Barclay Parsons, Charles F. Loweth, Charles O. Mailloux, and Henri Vigneron.

Report of the Committee of the Founder Societies on Employment Service

The attention of members is called to the report of the Joint Committee appointed to report on the whole question of Employment Service, shown as Exhibit C of the minutes of the meeting of the Board of Direction of April 16, 1923, as published on page 385 of this number of *Proceedings*. Tabulations of the Service statistics are given, showing the total registrations, placements and their distribution, and the yearly cost of the Service since 1919.

Based on this report, a plan for a Co-operative Service, partly self-supporting, has been submitted to the Boards of the Founder Societies by the Secretaries. The new Service will probably be initiated September 1, 1923.

New Committees of the Society

A Special Committee on Hydraulics Phenomena, consisting of Messrs. S. M. Woodward, *Chairman*, M. L. Enger, R. E. Horton, A. T. Safford, and E. W. Schoder, as well as a Special Committee on Concrete and Reinforced Concrete Arches, consisting of Messrs. C. T. Morris, *Chairman*, G. E. Beggs, J. R. Chamberlin, E. H. Harder, A. C. Janni, and W. M. Wilson, have been appointed. These Committees were authorized by the Board of Direction at its meeting of January 15, 1923.

Committee on Joint Co-Operation on Public Matters

The attention of members is called to page 374, of the minutes of the April 16, 1923, meeting of the Board of Direction, at which the reorganization of the Government Departments, suggested by the President of the United States and his Cabinet, was discussed. A committee of five members of the Society, of which President Loweth is Chairman, was appointed to present to the President and to the appropriate officials of Congress and of the Executive Departments, a resolution endorsing the recommendations of the President and his Cabinet. This Committee is also authorized to confer with the other National Societies with a view to formulating a method of joint co-operation on public matters and report its recommendations to the Board of Direction.

Co-Operation between Engineers of United States and Venezuela

In a recent letter, J. F. Case, M. Am. Soc. C. E., states that, in February, 1923, while on a visit to Venezuela, he called on the President of the Colegio

de Ingenieros de Venezuela and extended through him to that Society the greetings of the American Society of Civil Engineers.

Maj. Case attended a session of the Colegio which occupies quarters in the University of Caracas, and met many of its members with whom he discussed the possibilities of co-operation between the Societies, the sentiment toward American engineers being one of friendship and respect. As Venezuela's development is particularly dependent on the civil engineer, and such problems as railway transportation, highways, sanitary works, etc., will need to be solved, Maj. Case states there should be increasing opportunities there for American engineers and for co-operation between the Societies of the countries.

Gold Medal Award of American Institute of Architects

The Fifty-Sixth Annual Convention of the American Institute of Architects, which was held in Washington, D. C., was concluded with a banquet and pageant on the evening of May 18, 1923, in which the following delegates from the Society took part: Messrs. W. E. Parker, President of the District of Columbia Section, *Chairman*, John C. Hoyt, O. B. French, N. H. Heck, E. F. Wendt, G. A. Ricker, and G. B. Strickler.

Following the banquet, which was held in a pavilion on the east side of the lagoon which extends to the base of the Lincoln Memorial, President William B. Faville, of the Institute, with the guests of honor, Henry Bacon, Daniel Chester French, and Jules Guerin, were escorted, on a decorated barge, to the base of the Lincoln Memorial by members of the Institute and other guests marching by groups on each side of the lagoon, each group carrying a distinctive banner bearing the emblem or name of the organization represented.

On their arrival at the Lincoln Memorial, those participating in the pageant were received by President Harding who was accompanied by Chief Justice Taft of the Supreme Court. After a brief address by Mr. Faville, in which he paid a tribute to Mr. Bacon, Chief Justice Taft introduced President Harding, who addressed the gathering and presented the Gold Medal of the American Institute of Architects to Mr. Bacon.

Report of Advisory Council *re* Co-ordination of Federal Map-Making Efforts to the Board of Surveys and Maps

This report, which was submitted to the President of the United States through the Chairman of the Board of Surveys and Maps, makes the following recommendations regarding Government mapping.

- 1.—A definite policy of rapidly completing the mapping of the United States.
- 2.—A method for the more adequate distribution to the public of the various maps as they are made.
- 3.—Rapid completion of the general map of the United States.

The representative of this Society on the Advisory Council is J. K. Finch, Assoc. M. Am. Soc. C. E. The following accomplishments are noteworthy:

- 1.—The various map-making bureaus of the Federal Government were brought under the Board of Surveys and Maps.
- 2.—A Map Information Service has been established in Washington, D. C., where information in regard to maps published by the Government may be obtained.
- 3.—Detailed consultation has been given to map-scales, form of publication, control, and other matters of interest to producers and users of maps.

Engineering Foundation Aids Society Research

The offer of Engineering Foundation to appropriate \$1 000 to the Society for its investigation of Concrete and Reinforced Concrete Arches, and \$5 000 for its investigation of Steel Columns, was accepted by the Board of Direction at its April Meeting. Further information in regard to these grants may be found in the minutes of that meeting of the Board on page 378 of this number of *Proceedings*.

Resignation of Arthur P. Davis as Director of the U. S. Reclamation Service

The reports in the daily papers and in the technical journals have acquainted the membership with many of the facts connected with the resignation of Past-President Arthur P. Davis as Director of the U. S. Reclamation Service. The Board of Direction is endeavoring to obtain all possible information bearing on the matter to assist in determining its action. The co-operation of the members will be welcomed.

Attention is called to the action taken at the Annual Convention of the Society, in Chicago, Ill., reported on page 338.

New York Engineers License Law Amended

A bill amending the law for Licensing Engineers has been signed by Governor Smith. Another exemption has been added to Section 39-k, which is numbered 8, and which exempts those engaged in the "practice of professional engineering and land surveying as an officer or employee of a corporation engaged in interstate commerce."

Northwestern Section Reports on a Twin-City Metropolitan District

In the fall of 1922, a Committee of the Northwestern Section was appointed to report on some of the engineering problems confronting the Cities of St. Paul and Minneapolis, Minn.

The Committee's report, dated May 25, 1923, outlines briefly the problem of planning the future of the Metropolitan District of the two cities, and suggests mutual action on the part of the cities as a satisfactory solution of their problems. The report attracted considerable attention, the newspapers of both cities giving publicity to it.

Report on Welded Pressure Vessels

The May number of the *Journal* of the American Welding Society contains the report of a Committee appointed to Investigate Welded Pressure Vessels. This report contains about 150 pages, many illustrations and tables, and a bibliography of current welding literature.

Copies of this report are available for distribution at \$1.50 to members of the American Welding Society and \$5.00 to non-members.

Public Health Service Abstracts

The Public Health Service issues weekly abstracted articles appearing in current literature of interest to sanitary engineers. These articles are taken from about 150 domestic, and 50 foreign, publications. These abstracts may be obtained by applying to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Report on Business Cycles in Unemployment

A report and recommendations of a Committee of the President's Conference on Unemployment has been issued by the U. S. Department of Commerce. Copies of this report may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. Price, 5 cents per copy.

The Chicago Convention

The registration at the Chicago Convention, July 11 to 13, 1923, was approximately 735, which exceeds past records for meetings held outside New York. Following the President's Address, fifteen technical papers on Railroad Transportation and Railroad Terminals were presented to large and interested audiences. The meetings of the Technical Divisions were well attended, and a new City Planning Division was organized.

The weather was ideal, and the excursions and entertainments provided by the Chicago engineers proved thoroughly delightful.

A complete account of the Convention will be printed in September *Proceedings*. Because of their timeliness, the following resolution and explanatory statement are here given in full as adopted unanimously by the Board of Direction, July 10, 1923, and endorsed unanimously by the Society in Convention assembled July 11, 1923:

"Whereas, the Director, formerly Chief Engineer of the U. S. Reclamation Service, has recently been summarily dismissed by the Secretary of the Interior, apparently without a hearing, after a connection with this Service since its organization over twenty years ago—this Service being a Bureau charged with construction and operation of engineering works; and,

"Whereas, this summary dismissal of the head of a technical bureau, apparently without a hearing, may be made the precedent for other similar removals when prompted by political expediency; and because the engineering profession is deeply concerned in the wise and efficient direction of public works; now, therefore:

"Resolved, That the Board of Direction of the American Society of Civil Engineers approves the action of its Executive Committee in appointing a

special committee to collect additional facts and report further upon this matter.

"The Board submits for the information of the Annual Convention, the following statement:

"The Reclamation Service has had an honorable and a creditable career of over twenty years. Its conduct during that period has been under the constant surveillance of the officers of the National Administration, of Members of Congress, and of the residents of the numerous communities in which the projects have been constructed.

"The nature of its operations is such as to arouse the watchful care of those who are to be served and the active opposition of those whose interests might run counter.

"Throughout this long period there has been no scandal and no sustained charge of lack of faithful loyalty to public interests. The works erected and the precedents established serve as worthy examples for our own country and have been used as a guide in such developments in other lands. The personnel of the Service has been remarkably loyal, conscientious, and devoted to a high standard of public service. The dismissed Director has been either Chief Engineer or Director since the establishment of the work in 1902, and was at least entitled to a written statement of reasons for dismissal as provided in Civil Service regulations, and as required in proper administrative practice.

"The reported reason of better business administration advanced for the replacement of the Director by a successor under the new title of Commissioner, appears to be a pretext which is refuted by the long and honorable business record of the Director dismissed, in comparison with such record as we can obtain of the appointee selected to succeed him. The implication that engineers are not competent business administrators is refuted by numerous engineers who today are conducting as executives, many of the great railroad systems, public utilities, and industrial enterprises of this and other countries, and the U. S. Reclamation Service is peculiarly an engineering enterprise.

"The Board fears that any pretext of better administration could only be regarded as a perversion of the proper precepts of a rightful economy to suit the needs of an ever present political situation.

"The Board deplors the action taken by the Secretary of the Interior, for the following reasons:

"(1) That it will work irreparable injury to the Public Service in the breakdown of morale and confidence of public employees.

"(2) That it is an injustice to a man who has given forty-one years of faithful and valuable service to the Government of the United States.

"(3) That arbitrary methods of removal are not creditable to a popular government based upon equality and fair dealing.

"(4) That the change now inaugurated bears evidence of an attack upon a worthy and highly creditable branch of the government service to serve political needs.

"(5) That the conversion of the Reclamation Service into a political machine would result in the withdrawal of public confidence and national financial support with the resultant injurious effect upon the development of the West."

Activities of Local Sections*

Meetings of the Atlanta Section

A meeting of the Atlanta Section was held at the City Club on May 7, 1923; President Searcy B. Slack in the chair; B. M. Hall, Jr., acting as Secretary; and present, also, 22 members.

A letter from the Board of Direction relative to the establishment of a Benevolent Fund by the Society was read and discussed. A motion in favor of the establishing of such a fund by voluntary contribution, after having been duly seconded, was lost by a tie vote, President Slack not voting.

On motion, duly seconded, a report of the Committee on Motor Truck Wheel Loads and Speeds was adopted as read at the last meeting, with the exception of reduced speeds for metal tired vehicles. Mr. W. J. Kackley was also instructed to give this report publicity, and President Slack was authorized to appoint a committee to present the bill to the Legislature.

On motion, duly seconded, the Secretary was instructed to send flowers to Professor T. P. Branch who was reported as being very ill.

Mr. C. G. Adsit addressed the meeting on the "Tallulah River System of the Georgia Railway and Power Company."

MEETING OF MAY 28, 1923

A regular meeting of the Atlanta Section was held at the City Club, on May 28, 1923; President Searcy B. Slack in the chair; Frederick H. McDonald, Secretary; and present also 50 members and guests, including a number of members of the Georgia School of Technology Student Chapter, who were the guests of the Section.

Mr. P. H. Norcross gave an interesting description of the work on the revision and extension of the Water-Works System of Atlanta.

On motion, duly seconded, a committee, with Mr. Norcross as Chairman, was appointed to draft a memoir of the late Thomas Pettus Branch, M. Am. Soc. C. E., whose death occurred on May 28, 1923, for publication by the Society.

The Committee on the Registering of Engineers and Land Surveyors presented its report, with an outline of a suggested law. On motion, duly seconded, the passage of such a law was endorsed by the Section, and the Committee (Messrs. Pew, Johnston, Spiker, Hansell, and McDonald) was authorized to take steps to secure its enactment by the State Legislature.

Considerable discussion followed as to whether the law should embrace other classes than Civil Engineers, and, on motion, duly seconded, a letter ballot was authorized, to include members of the Society resident in Georgia, for decision on this question.

Mr. Kennedy, Chairman of the Student Chapter, expressed the thanks of the members of the Chapter for the attention shown the organization by the Section.

* For list of Local Sections, Officers, Rules, etc., see 1923 Year Book, p. 15, and p. 418.

New Officers of the Baltimore Section

At a recent meeting of the Baltimore Section, the following officers were elected for the ensuing year: President, Earl Stimson; Vice-President, A. E. Christhlf; and Secretary-Treasurer, George S. Robertson, Sr.

New Officers of the Buffalo Section

New officers of the Buffalo Section have been elected as follows: President, George H. Norton; and Secretary-Treasurer, Solon J. Stone.

New Officers of the Cincinnati Section

At the Annual Meeting of the Cincinnati Section held in April, 1923, the following officers were elected for the ensuing year: President, James Alber McDonough; Vice-President, George Doswell Brooke; and Secretary-Treasurer, Alphonse M. Westenhoff.

These officers, with Mr. Henry Delano Loring, constitute the Executive Committee of the Section.

Meetings of the Colorado Section

A regular meeting of the Colorado Section was held at the Metropole Hotel, Denver, Colo., on April 9, 1923; President Thomas H. Olds in the chair; William B. Freeman, Secretary; and present, also, 13 members and 5 guests.

The minutes of the meeting of March 7, 1923, and of the special meeting of March 21, 1923, were read and approved.

On motion, duly seconded, President Olds was authorized to appoint a committee of three to review and report on two tentative drafts of Universal Contract Agreement and General Conditions, one pertaining to building construction and the other to railroad construction. These tentative drafts were submitted to the Section by the Chairman of the Special Committee on Standard Construction Contracts of the Society.

The Secretary was instructed, on motion, duly seconded, to pay the annual dues of the Section in the Colorado Engineering Council.

Speaking for the Colorado Engineering Council, Mr. Arthur O. Ridgway called the attention of the meeting to the joint meeting of the member societies of the Council to be held at the University of Colorado, Boulder, Colo., on May 25, 1923. Mr. Ridgway stated that Samuel M. Vaucain, M. Am. Soc. C. E., President of the Baldwin Locomotive Works, Philadelphia, Pa., had been secured as the principal speaker at the meeting.

A lecture on "Present and Proposed Future Sources of Water Supply for the City of Denver" was presented by Mr. Bull, who illustrated his remarks with a number of maps and charts. In the course of his talk, Mr. Bull conclusively demonstrated that when Denver has a population of 500 000, it will be necessary to divert water from the western slope to provide a sufficient supply for future growth. The lecture was followed by a general discussion of the subject by Mr. Delph Carpenter and others.

On motion, duly seconded, a vote of thanks was accorded Mr. Bull for his interesting address.

MEETING OF MAY 14, 1923

A regular meeting of the Colorado Section was held at the Metropole Hotel, Denver, Colo., on May 14, 1923; President Thomas H. Olds in the chair; William B. Freeman, Secretary; and present, also, 13 members and 2 guests.

The minutes of the meeting of April 9, 1923, were read and approved, and communications to the Section were presented by the Secretary.

On motion, duly seconded, Messrs. H. S. Crocker and J. S. Means were appointed a committee to prepare resolutions of condolence on the death of James R. Scott, Jr., M. Am. Soc. C. E.

Mr. L. E. Bishop, as Chairman of the Committee on Universal Contract Agreements and General Conditions, presented a progress report of that Committee, which report, on motion, duly seconded, was accepted and the Committee continued. The other members of this Committee are Messrs. Arthur O. Ridgway, and R. S. Du Bois.

The appointment of a Committee on Membership was discussed at some length. No action was taken, but the matter will come up again at the next meeting of the Section.

A Nominating Committee, to make nominations for officers of the Section for the year 1923-24, was appointed and instructed to submit the names of the nominees to the Secretary, in order that ballots may be sent out in time to be opened at the next regular meeting. This Committee is composed of Messrs. A. N. Miller, Chairman; O. T. Reedy, L. R. Hinman, Robert Follansbee, and John E. Field.

Mr. George G. Anderson, Director from District No. 11, who was present as a guest of the Section, spoke on the activities of the Society. Among other matters, he mentioned the proposed Benevolent Fund and the new Technical Divisions. He also discussed the activities of various Local Sections, told of the excellent bulletins that some of the Sections have issued, and made some valuable remarks on the informal conferences of the delegates of the Local Sections at the four general meetings of the Society held each year.

On motion, duly seconded, President Olds appointed the following Committee to report on the Benevolent Fund at the June Meeting: Messrs. H. S. Crocker, Chairman, R. C. Gowdy, and Arthur O. Ridgway.

Mr. John S. Means addressed the meeting on "The Construction of the Sixteenth Street Viaduct in Denver" illustrating his remarks with sketches and lantern slides. At the conclusion of the address, Mr. Means was accorded a vote of thanks.

ANNUAL MEETING OF THE COLORADO SECTION

The Annual Meeting of the Colorado Section was held at the Metropole Hotel, Denver, Colo., on June 11, 1923; President Thomas H. Olds in the

chair; William B. Freeman, Secretary; and present, also, 10 members and 1 guest.

The minutes of the meeting of May 14, 1923, were read and approved.

On motion, duly seconded, the following resolution, prepared by Messrs. H. S. Crocker and J. S. Means, was read and adopted:

"Be It Resolved, The death of Mr. James Robinson Scott, Jr., which occurred May 3, 1923, is felt as a distinct loss:

"To the Colorado Section of the American Society of Civil Engineers of a loyal member, a constructive worker in building up its professional ideals,

"To the Engineering Profession of a co-worker whose quiet, unassuming manner merited and enlisted the full confidence of his associates,

"To the Commercial World of an alert business man, responsive to the best interests of both his firm and his client,

"To his wide circle of personal and business associates of a friend with a fine understanding, a kindly sense of humor, and a loyalty that will make his name one to be long remembered and cherished.

"In the spirit thus implied, the Colorado Section of the American Society of Civil Engineers expresses its high appreciation of the character and achievements of Mr. Scott, its sorrow at his death; and directs that this tribute to his memory be recorded upon its minutes and transmitted in proper form to his family.

"Adopted this eleventh day of June, 1923."

A report by the Committee appointed to investigate the desirability of a Benevolent Fund of the Society was presented and, on motion, duly seconded, unanimously adopted. It was the sense of this report that the Section is opposed to the creation of a Benevolent Fund by the Society.

On motion, duly seconded, a resolution was passed expressing the appreciation of the Section of the able assistance rendered by Dr. Harrison S. Craver, Director of the United Engineering Societies Library, New York, N. Y., in establishing the Colorado Scientific Library, and the Secretary was instructed to send copies of this resolution to the United Engineering Societies and to the Founder Societies and to write a personal letter of appreciation to Dr. Craver.

The following officers were elected for the ensuing year: President, Ivan C. Crawford; Vice-President, John S. Means; and Secretary-Treasurer, William B. Freeman.

The necessity and importance of topographic mapping in Colorado was discussed, and, on motion, duly seconded, the Secretary was instructed to write to the Secretary of the Interior calling his attention to this matter and urging that more of the funds appropriated for the U. S. Geological Survey be directed to the mapping of additional quadrangles in Colorado.

On motion, duly seconded, the President was instructed to appoint a committee to investigate the present status of topographic mapping in the State and to make recommendations as to the areas where topographic maps are most urgently needed and as to the order of importance of other areas in connection with future programs. The Secretary was also instructed to notify the Colorado Engineering Council of the action taken, with a recommendation that other engineering societies appoint similar committees. The President

subsequently appointed Messrs. Field, Ridgway, and Reedy, Chairman, as such committee.

President Olds delivered the address of the evening, his subject being "The Civil Engineer in the Oil Game", illustrating his remarks with charts. The subject was discussed in detail, after which, on motion, duly seconded, a vote of thanks was accorded Mr. Olds for his paper.

New Officers of the Connecticut Section

At the Annual Meeting of the Connecticut Section held on April 14, 1923, the following officers were elected for the ensuing year: President, William T. Dorrance; Vice-President, Robert A. Cairns; Secretary and Treasurer, Clarence M. Blair; and Directors, William J. Backes and Harold W. Griswold.

Meetings of the Detroit Section

A regular meeting of the Detroit Section was called to order at the Hotel Cadillac on April 6, 1923; President Charles Y. Dixon in the chair; Frank H. Stephenson, Secretary; and present, also, 33 members and 2 guests.

The report of the Tellers appointed to canvass the ballot on the proposed amendment regarding reduction of annual dues of the Section was received, and, on motion, duly seconded, was adopted.

Mr. L. E. Ayres, for the Committee appointed to organize a Student Chapter at the University of Michigan, reported that such organization was in progress.

Mr. George H. Fenkell addressed the meeting briefly regarding a complimentary dinner to Professor M. E. Cooley and a memorial to the late Professor Davis of the University of Michigan. He also suggested the desirability of having the Society hold a meeting in or near Detroit in the near future.

On motion, duly seconded, the officers of the Detroit Section were authorized to appoint a special committee to co-operate with similar committees from other organizations in the arrangements for a complimentary dinner to Professor Cooley.

A resolution was also adopted to petition the Board of Direction of the Society to hold a convention of the Society in or near Detroit in the near future.

Vice-President Edward M. Walker spoke of the probabilities of the Detroit Engineering Society acquiring headquarters which would be available for the use of other technical societies and form the nucleus of an Engineers' Club.

The entertainment of the evening was a Bridge Kaleidoscope which was opened by an interesting address by Professor Lewis M. Gram, of the University of Michigan, who illustrated his remarks with lantern slides. The subject was also discussed by Messrs. Porter and Shuptrine.

A special vote of thanks was extended to Professor Gram for his address.

MEETING OF MAY 26, 1923

A regular meeting of the Detroit Section was held at Ann Arbor, Mich., on May 26, 1923. The members present at the meeting inspected the new building work at the University of Michigan, which inspection was followed by a dinner at the Michigan Union. This part of the program and the dinner was arranged by the Student Chapter at the University.

The business meeting was called to order in the Reading Room of the Michigan Union; President Charles Y. Dixon in the chair; Frank H. Stephenson, Secretary; and present, also, 40 members, 18 members of the Student Chapter, and 2 guests.

The minutes of the meeting of April 6, 1924, were read and approved.

The Secretary presented a letter from Secretary Dunlap of the Society relative to the dates and locations of the coming meetings of the Society. Secretary Stephenson announced that a poll of the local members showed that more preferred a fall meeting in Detroit than a summer meeting, and, on motion, duly seconded, the Section decided to petition the Board of Direction to select Detroit as the place for the Fall Meeting of 1924.

The attention of the members of the Section was called to the campaign for funds for the Alfred Noble Memorial and to the fact that the late Mr. Noble was a native of Michigan and educated at the University of Michigan.

On motion, duly seconded, the following resolution was adopted:

"Whereas, It is understood that there is pending at this time the selection of one or more members of the Michigan State Public Utilities Commission to be appointed by the State Executive; and

"Whereas, The matters to come before such a commission are almost invariably technical, requiring in many cases a wide knowledge of engineering matters and including the selection and oversight of an engineering staff,

"Therefore Be It Resolved, That the Detroit Section, American Society of Civil Engineers respectfully urge the appointment of one or more engineers to membership in the Public Utilities Commission and that a copy of these resolutions be sent to His Excellency Governor Alexander Groesbeck with the offer that, on his request, this organization stands ready to suggest the names of engineers believed to be qualified to serve on such a commission."

The attention of the members of the Section was called to the Annual Convention of the Society to be held at Chicago, Ill., on July 11-13, 1923.

Professor Henry E. Riggs addressed the meeting briefly and introduced the members of the new Student Chapter to the members of the Section. Mr. George H. Fenkell, Director from District No. 7, on behalf of the Society welcomed the members of the Student Chapter, to which President Giffels of the Chapter replied.

Mr. David A. Molitor presented an interesting illustrated lecture on the Panama Canal.

Meeting of the Duluth Section

A regular meeting of the Duluth Section was called to order on April 16, 1923; President W. H. Hoyt in the chair; W. G. Zimmermann, Secretary; and present, also, 29 members and 1 guest.

The minutes of the meeting of March 19, 1923, were read and approved.

Letters from Secretary Dunlap of the Society in reference to the Spring Meeting to be held in New Orleans, La., and the publicity work in connection therewith, and the Year Book of the Society for 1923, were presented by the Secretary.

A letter was presented from J. S. Langthorn, Chairman of the Special Committee on Standard Construction Contracts of the Society, enclosing tentative drafts of the proposed universal contract agreement as applied to building construction and to railroad construction. President Hoyt referred the contract agreement as applied to building construction to a committee consisting of Messrs. V. L. Fixen and S. W. Tarr, and that applied to railroad construction to Messrs. W. A. Clark and E. H. Dresser, with the request that they study the agreements in question and report on them at the May meeting.

The request of the National Conference City Planning, New York City, asking that the Section appoint a representative to be present at the Conference, was referred to Mr. H. C. Ash, Secretary of the Duluth Planning Commission.

A letter was presented from Professor J. Gardner Bennett, of Marquette University, Milwaukee, Wis., stating that a movement was being made to establish a Section of the Society at Milwaukee, and asking for a copy of the Constitution of the Duluth Section and any other information that would be of benefit to the organizers. Professor Bennett's request was referred to the Secretary for reply.

A verbal report by the Committee consisting of Messrs. Hutchinson, Fixen, and Stack, on the paper by W. J. Knight, M. Am. Soc. C. E., of the St. Louis Section, entitled "Is the American Society of Civil Engineers a Progressive Institution?" was presented by Messrs. Fixen and Stack, and the subject was discussed by Messrs. Crago, Pickles, Hawley, Brockway, and Hoyt. It was the consensus of opinion that the Committee deserved the thanks of the Section for its report and, at the request of President Hoyt, it was instructed to formulate the report in writing for presentation at the May meeting.

Annual Meeting of the Illinois Section

The Annual Meeting of the Illinois Section was held at the Engineers' Club, Chicago, Ill., on January 4, 1923; President A. J. Hammond in the chair; W. D. Gerber, Secretary; and present, also, 43 members.

President Hammond introduced Mr. Charles F. Loweth, who spoke of the approaching Annual Meeting of the Society and presented some very interesting reminiscences of his 40 years as a member of the Society.

President Hammond stated that he had been advised that an invitation from the Section to hold the Annual Convention of the Society in Chicago this year, would be welcome, and on motion, duly seconded, he was instructed to extend such an invitation to the Board of Direction of the Society.

A letter from Onward Bates, Past-President, was presented by President Hammond. This letter related to the raising of funds for the bust of the

late James Buchanan Eads, F. Am. Soc. C. E., and contained the following resolution:

"Whereas: In view of the facts stated above, the Illinois Section, Am. Soc. C. E., directs its Secretary to collect and forward at once to the Secretary, Am. Soc. C. E., the sum of \$150 for the Eads' bust fund and to advise him that we are glad to contribute our Stored Earnings to an Animated Bust."

On motion, duly seconded, this resolution was unanimously adopted.

Among those present who spoke of the late Mr. Eads and his work was Mr. William T. Blunt who gave an interesting review of his personal contact with that great engineer.

Mr. T. L. Condrón was then introduced as the new Director from District No. 8, and after a few remarks, called on Mr. James N. Hatch who presented a poem, the theme of which was "The Engineer's Vision", entitled "The Transformation".

On motion, duly seconded, the Secretary was instructed to incorporate the poem in the minutes of the Section and forward a copy of it to the Secretary of the Society.

The Annual Report of the Treasurer was presented and was followed by the report of the Auditing Committee, Messrs. A. F. Reichmann and H. N. Elmer, who found the accounts to be correct as presented by the Treasurer.

Messrs. A. F. Reichmann, W. G. Arn, and Murray Blanchard, as the Nominating Committee, reported the following names for officers for the ensuing year: President, H. R. Safford; and Vice-President, Charles B. Ball.

On motion, duly seconded, the report of the Nominating Committee was unanimously adopted and the nominees declared elected.

President-elect Safford and Vice-President-elect Ball were introduced and spoke briefly of the opportunities of the Section.

The Executive Committee of the Section for 1923 is as follows: H. R. Safford, President; T. L. Condrón, and Charles B. Ball, Vice-Presidents; A. J. Hammond, Past-President; and W. D. Gerber, Secretary-Treasurer.

MEETING OF MARCH 6, 1923

Following the receipt, by the Corporate Membership, of a circular letter dated February 15, 1923, which included two resolutions passed in January, 1923, by the Board of Direction of the Society, pertaining to the question of joining the Federated American Engineering Societies, the Executive Committee of the Section issued a call for a meeting for the purpose of discussing the question *pro* and *con*.

The meeting was called to order in the Auditorium of the Western Society of Engineers, Chicago, Ill., on March 6, 1923; President H. R. Safford in the chair; W. D. Gerber, Secretary; and present, also, 34 members.

The Secretary read the circular letter referred to, after which the meeting was thrown open to discussion.

The question of the Society joining the Federated American Engineering Societies was discussed by nearly every one present, after which, on motion, duly seconded, the following resolution was adopted by a vote of 24 to 5:

"At a meeting of the members of the American Society of Civil Engineers resident in Illinois, called by the Illinois Section of the Society and held in Chicago, March 6, 1923, it is hereby resolved that the meeting disapproves of joining The Federated American Engineering Societies and recommends that the members Am. Soc. C. E. vote in opposition thereto."

Meetings of the Los Angeles Section

A regular meeting of the Los Angeles Section was held at the University Club on March 14, 1923; President Franklin D. Howell in the chair; F. G. Dessery, Secretary; and present, also, 40 members and 12 guests.

An invitation to the Regional Meeting of the American Society of Mechanical Engineers, to be held in Los Angeles from April 16 to 18, 1923, was extended to the Section by H. R. Hilton, Director of the Los Angeles Section of that Society.

President Howell introduced Ira O. Baker, M. Am. Soc. C. E., Professor Emeritus of Civil Engineering at the University of Illinois, Urbana, Ill., who addressed the meeting on "The Future Status of the Engineer". In the course of his address, Professor Baker stated the causes of the lack of appreciation of the Engineer and his work; discussed the remedy; mentioned briefly the legislative and administrative matters affecting engineers and engineering in the various States; and outlined the future work of the engineer.

After a brief résumé of the history of the Federated American Engineering Societies, Director George G. Anderson advocated a favorable vote on the part of the members of the Section on the ballot on the Society joining the Federation.

Mr. A. L. Sonderegger, Chairman of the Committee on Water Resources, to which Committee was referred the proposed State Drainage Act, reported favorably, and on motion, duly seconded, the report of the Committee was approved.

Treasurer E. R. Bowen reported on the financial condition of the Section.

After outlining briefly the previous discussions on the "Railroad Terminal Situation in Los Angeles" before the Section in 1920, President Howell presented a letter from the Municipal League advising of the action taken by the League requesting the Interstate Commerce Commission to make a comprehensive study of the Union Terminal Situation in Los Angeles.

On motion, duly seconded, a resolution was presented, requesting the Interstate Commerce Commission "to make a more complete investigation in order to provide a greater elimination of grade crossings in and across business streets of the City of Los Angeles, and that a more extended study should be made for the proper location of a union passenger station if it be found that a union passenger station will materially contribute to the economical elimination of grade crossings". Discussion of the subject was participated in by Messrs. Morris, Storrow, Bennett, Hawgood, and others, after which a substitute motion was made, seconded, and carried, that this resolution be held over for a month.

On motion, duly seconded, a rising vote of thanks was extended to Professor Baker for his address.

MEETING OF APRIL 11, 1923

A regular meeting of the Los Angeles Section was held at the University Club on April 11, 1923; Vice-President W. H. Code in the chair; F. G. Dessery, Secretary; and present, also, 36 members and 7 guests.

Mr. J. Grady Rollow, Secretary of the Los Angeles Section of the American Society of Mechanical Engineers, invited the members of the Section to participate in the Regional Meeting of that Society on April 16 to 18, 1923.

Vice-President Code announced the deaths of Edward Thomas Flaherty, M. Am. Soc. C. E., on April 1, 1923, and Clarence Everett Tait, M. Am. Soc. C. E., on April 5, 1923.

Professor Franklin Thomas, Chairman of the Committee to which was referred the criticisms of the report of the Standing Committee on Sewerage, presented the report of the Committee and explained the subject-matter in detail. On motion, duly seconded, the report was accepted and the Committee thanked.

Mr. H. W. Dennis reported that there had been eliminated from the present State budget the item of \$10 000 usually appropriated for co-operative stream gauging by the State of California and the U. S. Geological Survey. He offered the following resolution which, on motion, duly seconded, was unanimously adopted:

"Whereas, The available water supply of the State of California is a measure and a limit of the development of the State, by reason of its importance for domestic use, irrigation and power supply; and

"Whereas, The limit of these resources can be determined only by careful continuous measurements of the flow of streams; and

"Whereas, Breaks in the continuity of the stream flow records largely vitiate their value and without such continuous stream flow records the engineer and the investor must of necessity be handicapped, and, in a measure, gamble on results, and in order to overcome the necessity of taking such vital chances in the State's development,

"It Is, Therefore, Resolved, by the Los Angeles Section, American Society of Civil Engineers that viewing this matter in its broadest aspects, an important part of the future development of California depends upon the continuous records of the flow of the streams and their development for irrigation, domestic and industrial purposes, and we therefore petition the Governor, the State Senate and the State Assembly to reinstate the item of Ten Thousand Dollars per annum necessary for continuing this very important work; and

"It Is Further Resolved, that a copy of this resolution be sent to the Governor, Members of the State Senate and Assembly and to all Local Sections of the American Society of Civil Engineers, with the request that they use their best efforts to the continuance of the recording of the stream flow of the State."

Mr. Raymond A. Hill presented a paper on "Repairing the Spillway of the Gibraltar Dam on the Santa Ynez River", illustrating his description of this difficult job with many views of the work in its various stages, and pre-

senting cost data. The subject was discussed by Messrs. Dennis, Storrow, and L. C. Hill.

On motion, duly seconded, the Secretary was instructed to thank the Synchronous Club for the use of the lantern.

MEETING OF MAY 9, 1923

A meeting of the Los Angeles Section was held at the University Club on May 9, 1923; President Franklin D. Howell in the chair; F. G. Dessery, Secretary; and present, also, 29 members and 14 guests.

President Howell presented a communication from J. R. Hunt, Secretary of the proposed "Central Metropolitan Sanitary District", in which he requested President Howell to appoint a committee of engineers to submit a report outlining the engineering features of the proposed District. Mr. R. F. Goudey addressed the meeting in behalf of the request, and, on motion duly seconded, President Howell appointed the following Committee of three to meet with the officers of the proposed Sanitary District: Messrs. L. C. Hill, T. D. Allin, and F. G. Dessery.

A communication from Mr. E. W. Cunningham, transmitting the proposed Building Ordinance, was read, and, on motion, duly seconded, was referred by President Howell to the Building Code Committee, consisting of Messrs. Blaine Noice, R. P. Miller and A. J. Werner.

A letter from the Board of Public Works was presented, and Charles H. Treat, President of the Board, explained in detail the opposition of Los Angeles and neighboring cities to Assembly Bills Nos. 147, 190 and 191.

After considerable discussion by Messrs. Treat, Knowlton, Van Norman, Orbison, and Dessery, all of whom spoke against these Assembly Bills, on motion, duly seconded, the following resolution was unanimously adopted, and the President and Secretary of the Section was instructed to forward a telegram to Governor Richardson embodying the resolution:

"Whereas, it has come to the attention of the Los Angeles Section, American Society of Civil Engineers that the Legislature has approved Assembly Bills Nos. 147, 190 and 191, and Senate Bill No. 704, and that the same are in the hands of the Governor for his approval, and that these bills have been passed without the knowledge and consent of the municipalities and persons in Los Angeles County who will be seriously affected by the enactment of these bills; and

"Whereas, the various cities of Los Angeles County which have programs for construction of sewage works will be hampered by the enactment of these bills,

"Therefore, Be It Resolved, that the Los Angeles Section, American Society of Civil Engineers, at its regular meeting held this 9th day of May, 1923, at which there were 29 members present, do respectfully urge the Governor to veto these bills, and that should the reasons herein contained, in his mind, be not sufficient, that he grant us a hearing, so that we may properly present our reasons in opposing these bills."

On motion, duly seconded, President Howell was authorized to appoint a Committee of three to study these Assembly Bills, and he appointed Messrs. H. Hawgood, R. V. Orbison and R. F. Goudey as such Committee.

An address on "Contour Mapping by Aerial Photography" was presented by Mr. Leon T. Eliel who gave, by the use of the charts, diagrams, and lantern slides, demonstrations of the technical side of a new method of aerial photography called "Aeroconnaissance". Mr. Eliel was aided in his demonstration by Mr. Thornton Hamlin, and on motion, duly seconded, a vote of thanks was extended to them for their able presentation of the subject.

Annual Meeting of the Louisiana Section

The Annual Meeting of the Louisiana Section was called to order at the residence of Mr. Ole K. Olsen, New Orleans, La., on May 9, 1923; President D. Derickson in the chair; F. A. Muth, Secretary; and present, also, 18 members and guests.

The minutes of the previous meeting of the Section were read and approved.

The Annual Report of the Secretary was read and approved, together with the report of the Spring Meeting of the Society held in New Orleans on April 18-20, 1923.

Numerous letters from members of the Society, expressing their appreciation of the hospitable reception accorded them at the Spring Meeting, were read by Secretary Muth.

A communication from Secretary Dunlap relative to the establishment of a Benevolent Fund was presented, and after considerable discussion, on motion, duly seconded, it was voted that the consideration and final action by the Section on this question be deferred until the next meeting.

The following officers were elected for the ensuing year; President, E. H. Coleman; First Vice-President, S. M. Young; Second Vice-President, E. S. Bres; Secretary, F. A. Muth; and Treasurer, C. N. Bott.

The following Past-Presidents were announced as members of the Board; Messrs. D. Derickson, and Ole K. Olsen.

Meetings of the New York Section

A regular meeting of the New York Section was held at the Engineering Societies Building on April 18, 1923; President J. Vipond Davies in the chair; Harold M. Lewis, Secretary; and present, also, about 190 members and guests.

President Davies announced that, through the efforts of the Committee on High Bridge co-operating with a Committee of the American Institute of Architects, arrangements have been made for the preparation of a plan for the reconstruction of the bridge and that, in the meantime, definite action by the City Government has been postponed.

President Davies also announced that, through its Board of Directors, the Section had agreed to co-operate with the Committee on Arbitration Educational Week, which is to have meetings during May.

Mr. F. E. Schmitt, Chairman of the Committee on Structural Engineering, stated that the report of that Committee would be ready before the May

meeting of the Section, and President Davies announced that the report would be printed and distributed to the membership before that time.

The Committee to Nominate Officers of the Section for the coming year was unanimously elected, as follows: Messrs. O. E. Hovey, Chairman, Billings Wilson, Nelson P. Lewis, W. G. Grove, and E. G. Haines.

Secretary Lewis presented a letter from the Power Division of the Society asking the Section to assist in the adoption of water power legislation before the present Legislature of the State of New York, and this matter was referred to the Board of Directors for action.

The Committee appointed to investigate the desirability of establishing a Benevolent Fund for the Society submitted a report in which the history of the Benevolent Fund of the Institute of Civil Engineers of Great Britain and arguments for and against such a Fund for the Society were presented.

In this connection, the following resolution, on motion, duly seconded, was adopted:

"Resolved, That the New York Section of the American Society of Civil Engineers approve the establishment of a benevolent fund along the lines covered by the report of the Committee; and, further, be it

"Resolved, That the Secretary transmit this resolution, together with a copy of the Committee's report, to the Board of Direction of the Parent Society."

Mr. W. C. Briggs outlined the history of the Employment Service conducted by the Founder Societies and stated that, as this question had been before the other Local Sections of the Society, he thought that an expression of opinion on the desirability of the continuation of such Service should be made by the Section.

On motion, duly seconded, the following resolution was adopted:

"Resolved, That it is the sense of this meeting that the Employment Service of the Four Founder Societies be supported by the American Society of Civil Engineers until the Joint Committee, which is now considering the matter, makes its report and that a copy of the report, prepared by Mr. Briggs, be sent to the Secretary of the Parent Society and to the other Local Sections."

The subject of the meeting, "The Engineering of the Ancients", was introduced by C. J. Tilden, M. Am. Soc. C. E., who outlined the construction methods of the ancient Egyptians and Romans. Ralph Modjeski, M. Am. Soc. C. E., showed several illustrations of ancient bridges, and described their methods of construction, and William H. Burr, M. Am. Soc. C. E., outlined the growth of engineering design and described some of the materials used. William Barclay Parsons, M. Am. Soc. C. E., discussed the advance made during the Renaissance Period of engineering and showed illustrations from old Roman literature, and Mr. B. C. Batcheller described the nine aqueducts serving the City of Rome. The last speaker, J. K. Finch, Assoc. M. Am. Soc. C. E., outlined the various types of ancient tunnel construction.

NEW YORK SECTION PARTICIPATES IN JOINT MEETING

A Joint Meeting of the New York Metropolitan Sections of the four Founder Societies was held at the Engineering Societies Building, New York,

N. Y., on May 8, 1923; Mr. Gano Dunn in the chair; and present, also, about 400 members and guests.

The subject of the meeting, "The Engineer in Public Affairs", was opened by Admiral John K. Robison, Engineer-in-Chief of the U. S. Navy, who defined the engineer as "the man who is the builder for the State", and stated that public service generally necessitates self-sacrifice in some degree. Admiral Robison outlined the many accomplishments of public service which the U. S. Navy has rendered to the country, entirely aside from its fighting duties, and stated that the problem of National defense must be the problem for all engineers.

In continuance of the subject, Col. Frank B. Jewett stated that engineers can give the maximum service to the public if they are associated together in some form and that they must help to guide the proper use of the things which they have created. He also stated that researches of the physicist and chemist indicate enormous possibilities in the application of materials for the benefit of mankind, and that many matters previously under the supervision of laymen must be turned over to groups of technically trained men.

ANNUAL MEETING OF NEW YORK SECTION

The Annual Meeting of the New York Section was called to order at the Engineering Societies Building on May 16, 1923; President J. Vipond Davies in the chair; Harold M. Lewis, Secretary; and present, also, about 60 members.

The Annual Reports of the Treasurer and the Standing Committees were presented and accepted. The Secretary reported a total membership of 526.

Mr. James H. Edwards reported on the activities of the Structural Sub-Section during the past year and recommended that these meetings be continued and that an evening be devoted to the consideration of any subject that is worth while.

President Davies announced that the Committee on High Bridge had prepared a plan for reconstruction and presentation to the Commissioner of Plants and Structures of New York City, and stated that it was hoped that this plan would be adopted so as to permit a full waterway in the Harlem River and, at the same time, maintain the integrity of the bridge.

It was announced that the Committee on the Engineers' License Law had been instrumental in obtaining an extension of the date on which the New York State Law goes into effect from May 5, 1923, to August 1, 1923.

Mr. F. E. Schmitt, Chairman of the Committee on Structural Safety, stated that the report of that Committee, which had been printed and distributed to the membership before the meeting, had been condensed as much as possible, and asked for the discharge of the Committee. On motion, duly seconded, the Committee was discharged with thanks for its able and capable work, and the report was referred to the new Board of Directors with the recommendation that it be discussed at an early meeting in the fall with the hope that, with the co-operation of architects and builders, legislation thereon might be drafted for presentation to the next Legislature.

On motion, duly seconded, the Secretary was directed to transmit a copy of the report to *Engineering News-Record* for use in its columns and to forward copies of it to the other Local Sections and to local architectural societies.

The following officers were elected for the ensuing year: President, James H. Edwards; Vice-President, Allen Hazen; Treasurer, H. P. Hammond; and Directors F. W. Scheidenhelm and Richard de Charms.

Past-President Davies introduced President Edwards, who took the chair.

On motion, duly seconded, a vote of thanks was extended to Past-President Davies for his services during the past year.

Meetings of the Northeastern Section

A special meeting of the Northeastern Section was held in the rooms of the Affiliated Technical Societies, Boston, Mass., on April 30, 1923; President Lewis E. Moore in the chair; Charles W. Banks, Secretary; and present, also, about 30 members and guests.

The speaker of the evening was Col. C. H. Birdseye, Chief Topographic Engineer of the U. S. Geological Survey, whose subject was "The Use of the Airplane in Topographic Mapping". Col. Birdseye presented a very interesting account of the use of this method of mapping overseas and in this country since the World War, and discussed its limitations, advantages, and disadvantages as compared with mapping topography by the usual survey methods. He also showed many slides to illustrate his address, including several relative to the Colorado River Canyon Survey.

MEETING OF MAY 13, 1923

A regular meeting of the Northeastern Section was held at the Boston City Club, Boston, Mass., on May 12, 1923; President Lewis E. Moore in the chair; Charles W. Banks, Secretary; and present, also, 20 members and guests.

The reading of the minutes of the previous meeting was dispensed with as they had been printed in *Proceedings*.

The result of the letter ballot on the Amendment of Article 4, Section 1, of the Constitution of the Section, was announced, a majority of the members voting in favor of the amendment which now becomes effective, having been approved by the Board of Direction of the Society.

The amendment to Article 3, Section 1, of the By-Laws of the Section, relative to Dues, which was passed at the regular meeting of January 27, 1923, on motion, duly seconded, was confirmed by unanimous vote.

It was announced that as provided in Article 1, Section 3, of the By-Laws, President Lewis E. Moore would automatically become Councilor to the Affiliation of Technical Societies for two years beginning June 1, 1923.

After considerable discussion, it was voted, that the report of the Committee on a Benevolent Fund of the Society, as printed in *Proceedings* for December, 1922, be approved, and the Secretary was directed to notify the Board of Direction to that effect, stating that the number of members present and voting was 17.

A letter from the New York Section regarding the Employment Service of the four Founder Societies was presented and, on motion, duly seconded, it was voted that the members present favored the continuance of the Employment Service as conducted at present, and the Secretary was directed to notify the Secretaries of the Society and of the New York Section to that effect.

President Moore introduced Mr. R. W. Coburn, District Engineer of the Division of Highways of Massachusetts, who addressed the meeting on "Bituminous Pavements". Mr. Coburn answered questions from various members, and the reading of this paper was followed by a general discussion of the subject.

Meeting of the Northwestern Section

A regular meeting of the Northwestern Section was called to order at the Athletic Club, Minneapolis, Minn., on March 23, 1923; President George H. Herrold in the chair; A. S. Cutler, Secretary; and present, also, 47 members and guests.

The minutes of the January, 1923, meeting were read and approved.

The bills now before the Legislature concerning questions of topographic and hydrographic surveys, gauging stations, and the regulation of streams in the State of Minnesota, were discussed by Mr. E. V. Willard.

Charles F. Loweth, President, Am. Soc. C. E., who was the guest of the Section, addressed the meeting on "American Society Activities—Future Outlook and Present Tendencies". In the course of his address, Mr. Loweth reviewed the early history of the Society and the development of its plans and policies, discussing its relations with the other Founder Societies through Engineering Foundation, Engineering Council, and the proposed ballot on joining the Federated American Engineering Societies.

The present policy of the Society was discussed by Messrs. Wheeler, Gauger, Hutchinson, Turner, and Wolff. The result of the discussion was a more thorough understanding on the part of the local members of the policies and plans as well as the difficulties of the National office.

New Officers of the Philadelphia Section

At the Annual Meeting of the Philadelphia Section held on June 4, 1923, the following officers were elected for the ensuing year: President, Harrison Wainwright Latta; Vice-President, John Albert Vogelsson; and Directors, Herman Claude Berry and William Ainsworth McIntyre.

New Officers of the Providence Section

At the Annual Meeting of the Providence Section held on May 22, 1923, the following officers were elected for 1923-24: Chairman, William W. Peabody; Vice-Chairman, George T. Seabury; and Secretary, Robert L. Bowen. The members of the Executive Committee are Messrs. Sidney Wilmot and Frank E. Winsor.

Activities of the Sacramento Section

At a meeting of the Sacramento Section on April 17, 1923, the following officers were elected for the ensuing year: President, Edward Hyatt, Jr.; Vice-President, Frank D. Talbot; and Secretary, Harry A. Armstrong.

The Section now holds weekly luncheons at noon every Tuesday at the Sacramento Hotel, during which meetings brief addresses by visiting members of the Society, or other guests, are presented.

On April 21, 1923, an inspection of the Sacramento Filtration Plant was made by about 50 members and guests. Messrs. F. D. Talbot and Carl M. Hoskinson, Assistant Engineers, were in charge of the trip and explained the features of the various units of the System now under construction, including the intake work on the Sacramento River, pumping station, filters, etc.

At the luncheon on May 1, 1923, Assemblyman Robert McPherson, the only engineer in the present session of the State Legislature, presented an interesting talk on the proposed highway bridge across Carquinez Straits, which is being designed by Charles Derleth, Jr., M. Am. Soc. C. E.

Meetings of the St. Louis Section

The 119th meeting of the St. Louis Section was called to order at the American Annex on January 29, 1923; President J. T. Garrett in the chair; William C. E. Becker, Secretary; and present, also, 10 members.

The minutes of the 118th meeting were read and approved.

The report on the proposed Benevolent Fund, together with arguments in opposition to it by Director John N. Chester, was discussed, and, on motion, duly seconded, the following resolution was adopted by a vote of 11 to 1:

"That the St. Louis Section of the American Society of Civil Engineers endorse in principle the establishment of a Benevolent Fund".

Mr. C. D. Purdon reported relative to the action taken by the Joint Council in reference to assessment of the cost of the joint activities of the Associated Engineering Societies of St. Louis for 1923 against the entire individual membership, at the rate of \$10 for Members and \$5 for Juniors.

On motion, duly seconded, this action was approved, and the Secretary was instructed to send out the bills.

MEETING OF FEBRUARY 26, 1923

The 120th meeting of the St. Louis Section was called to order at the Chamber of Commerce Building on February 26, 1923; President J. T. Garrett in the chair; William C. E. Becker, Secretary; and present, also, 30 members.

The minutes of the 119th meeting were read and approved.

A letter from Secretary Dunlap was presented reporting the action of the Board of Direction on the proposed new Constitution of the Section, particularly the amendments to Section 3 of Article I and Article VII.

On motion, duly seconded, the changes required by the Board of Direction were authorized.

The evening was devoted to an informal discussion of the advisability of the Society joining the Federated American Engineering Societies. In the course of the discussion, it was moved, seconded, and carried, that the Secretary obtain copies of the statement prepared by Gardner S. Williams, M. Am. Soc. C. E., bearing on the arguments "for" and "against" joining the F. A. E. S., for distribution among the members of the Section. No action was taken in the matter, because the Section is a charter member of the F. A. E. S. through its connection with the Associated Engineering Societies of St. Louis.

MEETING OF MARCH 26, 1923

A regular meeting of the St. Louis Section was held at the Chamber of Commerce Building, St. Louis, Mo., on March 26, 1923; President John T. Garrett in the chair; William C. E. Becker, Secretary; and present, also, 29 members and 1 guest.

The minutes of the meeting of February 26, 1923, were read and approved.

A letter was read from the San Francisco Section reporting the action of the Welfare Committee of that Section on the paper by Mr. W. J. Knight entitled "Is the American Society of Civil Engineers a Progressive Institution", which, on motion, duly seconded, was ordered filed.

An announcement from the Chicago Section of its resolution in regard to the Society joining the Federated American Engineering Societies, and a letter from Director Darrow stating his position on the question, were read, and on motion, duly seconded, ordered to be filed.

The Secretary presented a special invitation from the Louisiana Section for members to attend the Spring Meeting of the Society to be held at New Orleans, La.

The report of the Committee appointed to prepare a "Schedule of Charges for Professional Services of Consulting and Construction Engineers" was presented for consideration. On motion, duly seconded, the Secretary was ordered to have the report distributed to members of the Section for final action at the next meeting.

The Secretary presented a request from Mr. Richard L. Humphrey, Chairman of the Committee on the Registration of Engineers, as to the attitude of the Section toward registration and licensing of engineers, together with other related information. After a lengthy discussion of the subject, it was voted unanimously that the Section is opposed to the registration or licensing of engineers, and Mr. Baxter L. Brown was asked by President Garrett to answer Mr. Humphrey's letter and report the attitude of the Section on the question.

Mr. W. E. Rolfe gave a brief address, in which he outlined the proposed organization of the various Engineering Departments of the Federal Government.

An interesting description of the organization of all the engineers in the State of Minnesota was presented by Mr. A. C. Godward, City Plan Engineer of Minneapolis, Minn.

Mr. Harland Bartholomew, in a brief talk, outlined the development of the Municipal Plaza as proposed by the City Plan Commission, following which a resolution was passed that it is the sense of the meeting to endorse the scheme for the Municipal Plaza as proposed by the City Plan Commission.

Meetings of San Diego Section

The Annual Meeting of the San Diego Section is held on the first Friday of December, other meetings being held on the call of the Board of Directors. Visiting members are requested to communicate with Secretary J. Y. Jewett for information regarding the meetings.

Meeting of the Seattle Section

A regular meeting of the Seattle Section was held at the Engineers' Club, on April 30, 1923; President W. F. Allison in the chair; and Frank H. Fowler, Secretary.

The minutes of the meeting of March 26, 1923, were read and approved.

Communications were presented by the Secretary, and bills were approved and ordered paid.

On motion, duly seconded, Messrs. H. F. Tucker, J. C. Rathbun, and P. J. Jennings were appointed a Committee to prepare a memorial on the death of the late Frank Arthur Rapp, M. Am. Soc. C. E., for the Section.

Director Saulsbury, of the U. S. Weather Bureau, at Seattle, addressed the meeting.

Organization of the Syracuse Section

The organization of the Syracuse Section was formally effected on April 27, 1923, the following officers having been elected: President, Louis Mitchell; First Vice-President, Glenn D. Holmes; Second Vice-President, Henry B. Brewster; Director, Daniel B. O'Brien; and Secretary-Treasurer, Henry G. Throop.

Annual Spring Meeting of the Texas Section

The Annual Spring Meeting of the Texas Section was held at the Westbrook Hotel, Fort Worth, on April 13 and 14, 1923.

The first session was called to order by Vice-President A. J. McKenzie, on April 13, 1923. The members of the Section were welcomed to the city by Mayor E. R. Cockrell, and a response was made by Second Vice-President John A. Norris.

Following the address of welcome, a short business meeting was held, and Vice-President McKenzie appointed the following members of the Resolutions Committee: Messrs. M. A. Stainer, Thomas R. Camp, and M. L. Diver.

Mr. George G. Anderson, Director from District No. 11, presented a very interesting talk on the policy and difficulties of the Board of Direction.

The meeting was then thrown open to discussion on "The Status of the Engineer and His Relation to the Public", in which the following members

took part: Messrs. John B. Hawley, J. H. Brillhart, E. N. Noyes, J. M. Howe, O. A. Seward, O. H. Koch, S. P. Finch, A. J. McKenzie, John A. Norris, W. D. Howren, J. C. McVea, and A. H. Dunlap.

The particular points brought out in this discussion were as follows: That the engineer should be a member of his local Chamber of Commerce; that he should make it a point to speak at public meetings, in order to place himself and his work before the public as much as possible; and that his reports should be made as readable as possible with a view to getting away from the prevailing type of such reports and making them interesting to the general public.

The Secretary reported that the number of members of the Society in Texas was 378, and that the number belonging to this Section was 193.

On motion, duly seconded, it was decided that a resolution be presented to the Society that the Section go on record as favoring the allocation of all members of the Society to the nearest Local Section.

Relative to the question of publishing in *Proceedings* of the Section certain tables, formulas, and other data in use in design by the engineers of the State, in order to make such information available to other engineers, on motion, duly seconded, the following resolution was adopted:

"That such information be compiled and referred to the Executive Committee to pass on the question of publishing the same."

A motion was made and carried that a certain percentage of the papers presented at the meeting be referred to the Society for publication.

Mr. George G. Anderson, Director for District No. 11, discussed the establishment of a Benevolent Fund by the Society, explaining its provisions and the manner in which it is intended to handle such fund, should the proposition be adopted. After a thorough discussion of the question, a motion was presented and carried that the Resolutions Committee prepare a resolution endorsing the Benevolent Fund.

On motion, duly seconded, the Secretary was authorized to obtain ribbons or buttons giving the name of each member in large type, for use at the meetings, to assist the members in getting acquainted.

After the morning session, a trip of inspection over the city was made, and a number of municipal and commercial projects were viewed by the visiting members. The evening was devoted to a complimentary dinner which was tendered to the members by the engineers of Fort Worth.

The second session of the Spring Meeting was called to order on April 14, 1923; Vice-President McKenzie in the chair.

A report on the progress toward the enactment of the license law for engineers was made by Mr. John A. Norris. This report was summarized in the statement that lack of interest on the part of engineers of the State was responsible for failure to secure such a law.

The report of the Resolutions Committee was received and, on motion, duly seconded, the following resolutions were unanimously adopted:

1.—“Whereas, it appears that during 1921 and 1922 the American Society of Civil Engineers contributed \$3 000 per annum for the support of the free employment service maintained by the Federated American Engineering Societies; and

“Whereas, it appears that the positions listed have been and are confined to the territory immediately adjacent to New York City, and consequently are of little interest or benefit to the non-resident members of the A. S. C. E.; and

“Whereas, the non-resident members contribute more than 75% of its income;

“Be It Therefore Resolved: That the Texas Section of the American Society of Civil Engineers considers the contribution of Society funds to the maintenance of such an Employment Service an unwarranted use of the 75% of its income supplied by the non-resident members, and respectfully requests the Board of Direction to discontinue its support of the said Employment Service.”

2.—“Whereas, there are 378 members of the Parent Society in the State of Texas; and

“Whereas, there are only 193 of these members who are active members of any branch or section of the Parent Society; and

“Whereas, the remaining 185 members take no part or give no support to any local branch or section of the Parent Society,

“Be It Therefore Resolved: That for the good of the Sections, and to stimulate interest in the Society in general, it is the opinion of the Texas Section of the American Society of Civil Engineers that each member of the Society should be allocated to his proper Local Section; and

“Be It Further Resolved: That this opinion be forwarded to the proper officers of the Parent Society.”

3.—“Whereas, there is under consideration by the American Society of Civil Engineers the establishment of a Benevolent Fund to be used for the assistance of worthy and needy members.

“Be It Resolved: That the Texas Section of the American Society of Civil Engineers endorse the establishment of such a fund.”

4.—“Whereas, owing to his serious illness, our President, Mr. E. E. Sands, was unable to preside at our Spring Meeting, and, whereas, we are informed that his condition is steadily improving,

“Be It Therefore Resolved: That the Texas Section of the American Society of Civil Engineers express its regret at Mr. Sands’ enforced absence from our meeting; and

“Be It Resolved: That the Texas Section also express its pleasure on the improvement of Mr. Sands’ condition and extend its best wishes for his speedy recovery.”

5.—“Whereas, the press of Fort Worth and Dallas have given due publicity to the Spring Meeting of the Texas Section of the American Society of Civil Engineers;

“Be It Therefore Resolved: That the thanks of the Texas Section be tendered to the papers in question for this publicity, and a copy of this resolution be sent to each paper.”

6.—“Whereas, various recently constructed sewage disposal plants throughout the State have been reported as operating unsatisfactorily; and

“Whereas, the principal cause of the trouble is that local parties in charge of the plants are uninformed as to the proper method of operation of these plants;

“Be It Resolved: That the Texas Section of the American Society of Civil Engineers suggest that the State Sanitary Department require to be filed for its approval, along with, and as part of, plans and specifications for sewage disposal plants, a set of instructions showing how to operate such plants,

"And further suggest that such set of instructions be posted in some building on the premises;

"Be It Therefore Resolved: That the Texas Section of American Society of Civil Engineers endorse the work of the State Sanitary Engineer and pledge its co-operation in his work."

7.—*"Whereas,* the State of Texas is preparing to spend considerable sums of money in the conservation of waters of the State; and

"Whereas, the salaries of the State Board of Water Engineers and the State of Reclamation Engineers have not been increased since the establishment of these departments; and

"Whereas, the cost of living has increased materially since these departments were established;

"Be It Therefore Resolved: That the Texas Section of the American Society of Civil Engineers recommend that the salaries of the State Engineers having jurisdiction over this conservation work be made commensurate with the importance of the work."

There were present at the Spring Meeting 70 members and 10 guests, and the following papers were read: "Proposed Work of the State Board of Water Engineers", by John A. Norris; "The Use of the Airplane in Mapping", by Floyd M. Long; "A Study of Texas Storm Rainfall Intensities and Storm Run-off", by S. W. Freese; "An Unusual Manganese Phenomenon at Breckenridge, Texas, Filtration Plant", by John B. Hawley and W. S. Mahlie; "Review of the Work of the State Sanitary Board", by V. M. Ehlers; and "Progress Report on Wichita Falls Irrigation Project", by O. N. Floyd.

Meeting of the Virginia Section

A meeting of the Virginia Section was held in the Chamber of Commerce, Norfolk, Va., on May 7, 1923; President James A. Anderson in the chair; J. C. Carpenter, Secretary; and present, also, 41 members and guests.

In a brief introductory address, President Anderson stated that the subject for discussion at the meeting would be "Port Development for Virginia". The National phase of the subject was outlined by E. C. Kelton, Major, Corps of Engineers, U. S. A., who presented an interesting and instructive address on the work of the Corps of Engineers, during which he sketched the organization of the United States Engineering Department and discussed the methods of financing of improvements and maintenance of waterways, the use of the waterways as a means of transportation, and the projects being constructed in the Norfolk District. Maj. Kelton illustrated his address with charts and maps of the Norfolk District.

The program of development and expansion undertaken by the Port Commissions of Virginia was discussed by Mr. Henry G. Barbee, a member of the Commission. Mr. Barbee presented a brief history of the work done by the present Commission and also the preliminary work which was done to promote interest in the project of developing the port of Hampton Roads.

On the completion of Mr. Barbee's address, the following motion was made, duly seconded, and adopted:

"Inasmuch as the Hampton Roads port development is to a large extent an engineering problem, I move that the Virginia Section extend to the Port

Commission all co-operation and aid in its power to solve this problem and get it properly before the Legislature and Congress."

President Anderson then introduced Mr. Walter H. Taylor, third, Director of Public Works of Norfolk, who presented an interesting paper on the Water Supply of Norfolk, illustrating his talk with slides and charts showing the recently completed pipe line as well as the filter beds purification system, etc.

On the completion of the papers, President Anderson called a business meeting of the Section.

He announced that the Fall Meeting of the Society would be held in Richmond, Va., in October, 1923, and urged that all members of the Society in Virginia be encouraged to take part in the preparation of entertainment for the members from outside of Virginia.

The question of standardizing sizes of crushed stone and other aggregates for use in the construction industry in Virginia was discussed, and a Committee, composed of Messrs. E. T. D. Myers, Allen J. Saville, and J. C. Carpenter, was appointed to investigate the problem and make a suitable report thereon to the Section.

In accordance with the authority granted at the January meeting of the Section, President Anderson appointed three members to act as representatives of the Section on the Council to be formed with members of the other technical organizations of the State in an attempt to harmonize the activities of the various bodies. This Committee is to be composed of President Anderson, Vice-President Frank M. Weakley, and Vice-President R. B. H. Begg.

On motion, duly seconded, a vote of thanks was extended to Vice-President Frank M. Weakley for his work in arranging this meeting of the Section.

NEW SECRETARY OF VIRGINIA SECTION

Mr. Lee H. Williamson, of Charlottesville, Va., has resigned as Secretary-Treasurer of the Virginia Section and Mr. J. C. Carpenter, of Richmond, Va., has been appointed to that office.

Minutes of Meetings OF THE SOCIETY

New Orleans, La., Meeting

April 18, 1923.—The first session of the Spring Meeting of the Society was called to order at 10:15 A. M., at the Grunewald Hotel, New Orleans, La.; President Donald Derickson, of the Louisiana Section, in the chair; and present, also, 288 members and guests, including members of the Student Chapter of the Society at Tulane University.

After calling the meeting to order, Mr. Derickson* introduced Governor John M. Parker of Louisiana, who presented an address of welcome.**

President Charles F. Loweth replied† to the welcome extended by Governor Parker.

President Loweth then took the chair.

The technical program of the meeting, which consisted of papers and discussions on "The River and Harbor Problems of the Lower Mississippi", was opened by Lansing H. Beach, M. Am. Soc. C. E., Major-General and Chief of Engineers, U. S. A., who presented a paper on "The Work of the Corps of Engineers on the Lower Mississippi".‡ In the absence of the author, Secretary Dunlap presented a paper by Henry C. Ripley, M. Am. Soc. C. E., entitled "The Economic Location of Jetties".§

The papers were followed by oral discussion on the subjects by Messrs. J. A. Ockerson and Sidney F. Lewis.

A paper entitled "The Success of the Mississippi River Levees in the Flood of 1922",¶ by A. L. Dabney, M. Am. Soc. C. E., was presented by the author. Mr. Dabney was followed by Louis R. Parmelee, Assoc. M. Am. Soc. C. E., who presented a paper on "The High-Water Fight at Old Town, Arkansas, in 1922".||

A regular business meeting of the Society was called to order at 12:10 P. M.

The minutes of the meetings of February 14 and March 7, 1923, were approved as printed in *Proceedings* for April, 1923.

Announcements relative to the regular business meeting of the Society to be held on May 2, 1923, the Annual Convention, and the Fall Meeting, were made by the Secretary, and W. B. Gregory, General Chairman of the Committee on Local Arrangements, made several announcements relative to excursions, etc.

Adjourned to meet at 8:00 P. M.

After the adjournment of the Business Meeting, a motion picture furnished by Mr. Dabney, showing the work in holding the levee at Devils Hole, Tunica

* See p. 410.

** See p. 411.

† See p. 413.

‡ See Papers and Discussions, p. 1134.

§ *Loc. cit.*, p. 1141.

¶ *Loc. cit.*, p. 1149.

|| *Loc. cit.*, p. 1155.

County, Miss., in 1921, was shown, and Mr. Parmelee also presented some lantern slides of the high-water fight at Old Town, Ark., in 1922.

April 18, 1923.—The second session of the Spring Meeting was called to order at 8:15 p. m.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, 259 members and guests.

In continuation of the subject, "The River and Harbor Problems of the Lower Mississippi", Elliott J. Dent, M. Am. Soc. C. E., presented a paper on "The Mouths of the Mississippi River",* illustrating his remarks with lantern slides. Col. Dent was followed by John Klorer, City Engineer, New Orleans, La., whose paper, "The Flood Problem of the Lower Mississippi River",† was also illustrated with lantern slides. A paper on "The Revival of Commercial Transportation on the Mississippi River", was presented by M. J. Sanders, Manager, International Mercantile Marine and the Frederick Leyland Company, Limited, New Orleans, La.

These papers were followed by oral discussion on the subject by C. McD. Townsend, M. Am. Soc. C. E.

Before the adjournment of the meeting, a motion picture of the 1922 flood in the Mississippi River was shown.

Adjourned at 10:20 p. m., to meet again at 10:00 a. m., on April 19, 1923.

April 19, 1923.—The third session of the Spring Meeting was called to order at 10:15 a. m.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, 252 members and guests.

In continuation of the subject, "The River and Harbor Problems of the Lower Mississippi", a paper by John F. Coleman, M. Am. Soc. C. E., entitled "The Port of New Orleans"‡ was presented by the author. Mr. Coleman was followed by Samuel M. Young, M. Am. Soc. C. E., with a paper entitled "The Port Development Problem of the Lower Mississippi"§. A paper by John R. Freeman, Past-President, Am. Soc. C. E., entitled "The Need of a National Hydraulic Laboratory for the Solution of River Problems"||, was presented by Mr. Freeman.

Written discussions on Mr. Freeman's paper by Messrs. B. F. Groat, Gardner S. Williams, A. W. Newton, Morris Knowles, Hardy Cross, L. W. Wallace, and L. K. Sherman, were presented by Secretary Dunlap, who also read a telegram from H. K. Barrows, M. Am. Soc. C. E., and the subject was discussed orally by Messrs. E. J. Dent, John Millis, and C. E. Grunsky.

The technical session was closed by a paper by the Hon. Joseph E. Ransdell, U. S. Senator from Louisiana, on "The Economics of Transportation on the Mississippi River".

Adjourned.

* This paper, with several others and part of the discussion presented at the Spring Meeting, will be published in a subsequent number of *Proceedings*.

† See Papers and Discussions, p. 1159.

‡ *Loc. cit.*, p. 1167.

§ *Loc. cit.*, p. 1177.

|| *Loc. cit.*, p. 1185.

New York Meetings

May 2, 1923.—A regular business meeting was called to order at 8:20 P. M., at the Headquarters of the Society; Vice-President Robert Ridgway in the chair; John H. Dunlap, Secretary; and present, also, 83 members and guests.

A paper by Joel D. Justin, M. Am. Soc. C. E., entitled "The Design of Arch Dams", was presented in Mr. Justin's absence by Thomas H. Wiggin, M. Am. Soc. C. E., who illustrated his remarks with lantern slides. A written discussion on the subject by Allen Hazen, M. Am. Soc. C. E., was read by H. Malcolm Pirnie, Assoc. M. Am. Soc. C. E., and the subject was discussed orally by Messrs. James F. Sanborn, E. G. Haines, Thaddeus Merriman, A. H. Pratt, and Thomas H. Wiggin, Messrs. Haines and Pratt illustrating their remarks with lantern slides.

Adjourned.

June 13, 1923.—A regular business meeting was called to order at 8:15 P. M., at the Headquarters of the Society; Vice-President Robert Ridgway in the chair; John H. Dunlap, Secretary; and present, also, 108 members and guests.

A paper by William G. Atwood and A. A. Johnson, Members, Am. Soc. C. E., entitled "The Disintegration of Cement in Sea Water", was presented by Col. Atwood. Written discussions on the subject from Messrs. Duff A. Abrams, Nathan C. Johnson, and Gen. William M. Black were announced as having been received, and the paper was discussed orally by Messrs. Alfred D. Flinn, B. A. Howes, Thomas H. Wiggin, R. H. Gaines, J. R. Slattery, Kenneth Allen, John Charles Riedel, Charles Rufus Harte.

V. LeR. Havens, M. Am. Soc. C. E., reported on the significant features of the International Engineering Congress recently held at Rio de Janeiro, Brazil.

Adjourned.

OF THE BOARD OF DIRECTION

This is an abstract of the notes of the Secretary and subject to approval by the Board of Direction at its next meeting.

April 16, 1923.—The Board met at 11 A. M., at the Grunewald Hotel, New Orleans, La.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, Messrs. Anderson, Brown, Chester, Condron, Darrow, Davis, Davison, Dyer, Fenkell (came in at 11:15 A. M.), Freeman, Grunsky, Hogan (came in at 11:10 A. M.), Holland (came in at 11:15 A. M.), Holmes (came in at 11:05 A. M.), Mason, Ridgway (came in at 11:10 A. M.), Talbot, Whitman, Winsor, and Yates.

The minutes of the meetings of the Board of Direction held January 15-16, 1923, and January 17-19, 1923, were approved as recorded and issued to each member of the Board.

The report of the meeting of the Membership Committee held March 12, 1923, was adopted as the action of the Board.

The minutes of the meetings of the Executive Committee held February 2, March 1, March 12, and March 31, 1923, were also approved, and the actions therein outlined adopted as the actions of the Board (with the exception of recommended adoption of amendments to Article IV of the By-Laws, notice of which is given subsequently in these minutes).

The following is an abstract of these minutes:

ABSTRACT OF MINUTES OF MEETING OF EXECUTIVE COMMITTEE,
FEBRUARY 2, 1923

The Executive Committee met at 10:15 A. M.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, Messrs. Holland, Ridgway, and Winsor.

The question of apportioning the lump-sum appropriation of \$10 000 in the Budget adopted by the Board for Work of Committees in 1923 was carefully considered, together with the requests for appropriations received from the various Committees. After due consideration, the following sums were apportioned:

Committee.	Allotment.
Alfred Noble Memorial.....	\$500
American Engineering Standards (mileage).....	250
Bearing Value of Soils for Foundations.....	400
Electrification of Steam Railways.....	400
On Standard Construction Contracts.....	500
Specifications for Reinforced Concrete.....	600
Irrigation Hydraulics	600
Bridge Design and Construction.....	1 500
Impact in Highway Bridges.....	1 700
Stresses in Structural Steel.....	1 200
Flood Protection Data.....	750
New Committees	1 600
Total	\$10 000

It was reported that the Board at its meeting on January 17, 1923, had referred to this Committee, with power, the question of policies concerning Technical Divisions.

After careful consideration, it developed that although these Divisions may be regarded in some respects as large committees of the Society, yet they are to be formed and administered in accordance with Article VII of the By-laws.

The Secretary was instructed to comply with the request of the Sanitary Engineering Division and send bills for the Division dues to all its members, to place dues collected in a separate fund to be used only by the Division, to pay bills on proper certification of the Division Chairman as for Special Committees, and that this work is to be done for any Division making similar request.

Furthermore, the Secretary's Office will assist to the extent desired by Divisions in the enrollment of members, in sending out Division circulars, ballots, etc.

In the foregoing discussion it was pointed out that the By-law requiring that the Committee on Special Committees shall oversee, on behalf of the Board of Direction, all the work of the Special Committees, and pass on and approve all the expenditures of such Special Committees and make recommendation to the Board concerning the progress of their work, with recommendation for further work, etc., had become inactive in so far as approval of

expenditures was concerned, and that the Special Committee on Research had assumed certain other duties of the Committee on Special Committees.

It was decided therefore to recommend to the Board at its next meeting that the Committee on Special Committees be eliminated and the responsibilities of that Committee taken over by the Executive Committee and the Committee on Research, and the By-laws changed accordingly.

On motion, the Secretary was instructed to advise the four Technical Divisions that pending further information as to their needs, there is set aside for each Division \$750 for the current year.

The question of mileage was considered, and it was decided to allow Technical Divisions to pay the mileage of their Committees to the extent of their available funds at the same rate allowed Special Committees of the Society, that is, at 6 cents per mile, and, furthermore, that the general rule, now in force with Special Committees of the Society, should be followed in the case of Committees of Technical Divisions. It was decided, however, that an exception to this rule should be made in the case of Executive Committees of Technical Divisions, which may hold meetings before or after Society meetings in the manner of the Board of Direction, or which may hold meetings before or after Technical Division meetings not occurring in connection with Society meetings.

In regard to rules governing the work of Special Committees of Technical Divisions of the Society, it was decided to leave this matter to the Divisions.

The President was authorized:

(a) To fill the vacancy on the Library Board of the Engineering Societies Library caused by the expiration of the term of Robert A. Cummings, M. Am. Soc. C. E.

(b) To appoint a representative for the conference of the American Engineering Standards Committee on Unification of Abbreviations used in Engineering, to take the place of Mansfield Merriman, M. Am. Soc. C. E., who was unable to serve.

(c) To appoint a representative for the conference of the American Engineering Standards Committee on Walkway Surfaces.

(d) To fill the vacancy caused by the resignation of H. Eltinge Breed, M. Am. Soc. C. E., from the Chairmanship of the Committee on General Form of Standard Construction Contracts.

Adjourned at 1:10 P. M.

ABSTRACT OF MINUTES OF MEETING OF EXECUTIVE COMMITTEE,
MARCH 1, 1923.

The Executive Committee met at 10:10 A. M.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, Messrs. Holland (came in at 11:30 A. M.), Ridgway, and Winsor. (Treasurer Hovey came in at 10:25 A. M.).

POLICIES OF TECHNICAL DIVISIONS

The draft of a proposed letter to the officers of Technical Divisions outlining policies was considered and approved in the following form:

"TO THE OFFICERS OF THE TECHNICAL DIVISIONS
OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

"DEAR SIRS.—In accordance with the authority conferred by the Board of Direction January 17, 1923, the Executive Committee on February 2, 1923, formulated the following policies as to Technical Divisions, so that their work might be furthered and their resources conserved:

"1. Technical Divisions are to be formed and administered in accordance with Article VII of the By-laws, a copy of which is enclosed.

- "2. The Secretary's office is to assist to the extent desired by Divisions in enrollment of members and in sending out Division circulars, ballots, etc. It will, if desired, send bills for Divisions dues, and place dues collected in a separate fund to be used only by the Division. (Such assistance has already been requested by the Sanitary Engineering Division and the Power Division.)
- "3. All bills of Technical Divisions, certified as correct by their Chairman, are to be paid through the Secretary's office, to the extent of their appropriations by the Board of Direction or of their available funds if their dues are collected by the Secretary.
- "4. In accordance with Article VII of the By-laws, the action of Technical Divisions in levying Division dues should be approved by the Board of Direction. (The action of the Power Division in levying dues of \$1 per member was approved.)
- "5. For the guidance of the Board of Direction in preparing the Budget, all Technical Divisions are requested to submit their proposed budgets. (The Sanitary Engineering Division has already done this.)
- "6. An allotment of \$750 for the current year was made to each Division.
- "7. Mileage may be paid Committees of Technical Divisions to the extent of their available funds, at a rate not exceeding that allowed Special Committees of the Society, that is, 6 cents per mile. Furthermore, it was decided that the general rule, now in force with Special Committees of the Society, should be followed in the case of Technical Divisions. This rule forbids payment of mileage when the meeting is held at the same time and place as meetings of this or other Societies, unless specially authorized. It was decided, however, that an exception to this rule should be made in the case of Executive Committees of Technical Divisions which hold meetings before or after Society meetings in the manner of the Board of Direction, or which hold meetings before or after Technical Division meetings not occurring in connection with Society meetings.
- "8. Rules governing the work of Special Committees of Technical Divisions were left to the decision of the Divisions.
- "In accordance with the foregoing policies, please be assured that I shall be glad to co-operate with you in this work wherever possible, and trust that you will not hesitate to call upon me.

"Faithfully yours,

"JOHN H. DUNLAP,

"Secretary."

The Committee recessed for luncheon at 1:05 P. M.

The Committee reconvened at 2 P. M., with the same attendance as in the morning.

COMMITTEE ON TECHNICAL ACTIVITIES AND PUBLICATIONS TO BE ALLOWED MILEAGE

The Secretary reported that on February 9, 1923, during a conference with the Chairman of the Committee on Technical Activities and Publications, he suggested to the Secretary that mileage be allowed to members of such Committee.

On motion, it was decided hereafter to allow mileage to the members of the Committee on Technical Activities and Publications on the same basis as the Executive Committee, provided there has been no action by the Board at any time which would be contrary.

MILEAGE FOR STANDING COMMITTEES OF THE BOARD OF DIRECTION

It was moved, for recommendation to the Board, that, in order to make the practice uniform, all Standing Committees of the Board be allowed mileage on the basis of the Board of Direction, that is, 5½ cents per mile with a \$4 per diem allowance.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE INVITES THE SOCIETY TO APPOINT TWO REPRESENTATIVES FOR 1923

A letter dated February 15, 1923, was presented from Secretary Livingston of the American Association for the Advancement of Science, inviting the Society to appoint two representatives for 1923 from the vicinity of Cincinnati, Ohio, in which city the Annual Meeting of the Association will be held, on December 27, 1923 to January 2, 1924.

On motion, the President was authorized to appoint two representatives.

AMERICAN ENGINEERING STANDARDS COMMITTEE INVITES SOCIETY'S REPRESENTATIVE TO CRITICIZE PROPOSED SPECIFICATIONS FOR MANILA ROPE

A letter dated February 21, 1923, was presented from the American Engineering Standards Committee inviting the Society to appoint a representative to criticize certain proposed Specifications of the Federal Specifications Board for Manila Rope, in order to ascertain the attitude of industry toward them.

On motion, the President was authorized to appoint such representative.

CONFERENCE OF ENGINEERS, ARCHITECTS, AND CONTRACTORS ON STANDARD CONSTRUCTION CONTRACTS

On motion, J. S. Langthorn, M. Am. Soc. C. E., Chairman of the Special Committee on General Form of Standard Construction Contracts, was appointed as the Society's delegate to the Conference of Engineers, Architects, and Contractors on Standard Construction Contracts held under the call of the Secretary of Commerce.

On motion, mileage was allowed Mr. Langthorn in this connection.

SECRETARY OF TEXAS SECTION ASKS NAME OF DIRECTOR OF DISTRICT NO. 15

It was reported that a telegram dated February 20, 1923, had been received from Secretary Noyes of the Texas Section asking to be advised of the name of the Director of District No. 15, to which the following telegram was sent in reply:

"George G. Anderson elected Director in nineteen twenty one to represent District eleven which at that time included Texas Stop Texas is now in District fifteen which includes Mexico, Louisiana, Oklahoma and Texas Stop You have now no Director from that District."

A further letter from Secretary Noyes dated February 22, 1923, states:

"Please advise if any arrangements were made at the meeting of the Board of Direction for temporary representation from this district until a Director could be elected and also advise if any arrangements have been made for the election of a Director in this District."

In January, 1922, the Board re-arranged the Districts of the Society, in accordance with the new Constitution, and allocated Texas to District No. 15, which comprised in addition, Nebraska, Kansas, Oklahoma, and Mexico. In January, 1923, a new arrangement was adopted. Texas remained in District No. 15 which now includes also Mexico, Louisiana, and Oklahoma.

It was decided that as Director Anderson was originally elected to represent Texas among his constituency, that he would still continue as its representative.

UNION DES ASSOCIATIONS INTERNATIONALES ET INSTITUT INTERNATIONAL
DE BIBLIOGRAPHIE

A request was presented from the Union des Associations Internationales et Institut International de Bibliographie, for the *Proceedings* and *Transactions* of the Society free of charge, for the purpose of making abstracts of papers in order to record them in the Universal Bibliographical Index according to the Dewey Decimal Classification.

On motion, it was decided to forward *Transactions* only, and to request an exchange of publications.

SCIENCE SOCIETY OF CHINA

It was reported that through the then President Freeman a request was received from the Science Society of China for a gift of the Society's publications. The Secretary reported that such publications could be forwarded through the Smithsonian Institute at a small cost and suggested that as many volumes of *Transactions* as are now available be forwarded, and that *Transactions* and *Proceedings* be forwarded in the future free of charge.

On motion, the Secretary's suggestion was adopted.

The following matters were reported for the record:

The Public Relations Committee has been re-appointed for 1923, with the same personnel as in 1922, by President Loweth. (Baxter L. Brown, Chairman, M. G. Barnes, A. H. Markwart, Leonard Metcalf, and George R. Putnam).

The Committee on Professional Conduct has been appointed by President Loweth and is composed of Messrs. John R. Freeman, Chairman, George S. Davison, and I. W. McConnell.

The Committee on Local Sections has been appointed, as follows: Richard L. Humphrey, Chairman, George G. Anderson, and George H. Fenkell.

Library Board of Engineering Societies Library: At the last meeting of this Committee, the President was authorized to fill the vacancy caused by the expiration of the term of Robert A. Cummings, M. Am. Soc. C. E., as one of the Society's representatives, and it is now reported that President Loweth appointed Lincoln Bush, M. Am. Soc. C. E., who has accepted.

Sectional Committee to Consider the Question of Approval and Sponsorship of the Standard Specifications Submitted by the American Society for Testing Materials on Welded Seamless Steel Pipe and Welded Wrought Iron Pipe: Appointment of F. M. Towl, M. Am. Soc. C. E., as the Society's representative in this matter. Mr. Towl has accepted this appointment.

Conference on Walkway Surfaces Called by American Engineering Standards Committee: Appointment of Amos Schaeffer, M. Am. Soc. C. E., as the Society's representative in this matter. Mr. Schaeffer has accepted this appointment.

Committee on General Form of Standard Construction Contracts: Appointment of J. S. Langthorn, M. Am. Soc. C. E., as Chairman of this Committee in place of H. Eltinge Breed, M. Am. Soc. C. E., who has been retained as a member. Mr. Langthorn has accepted this appointment.

Special Committee to Codify Present Practice on the Bearing Value of Soils for Foundations: Appointment of George Paaswell, M. Am. Soc. C. E., as an additional member of this Committee. Chairman Cummings of this Committee in a letter dated February 12, 1923, called attention to the vacancy in the Committee and submitted Mr. Paaswell's name after consultation with a majority of his Committee. Mr. Paaswell has accepted this appointment.

New Society Representative Appointed on Joint Committee on Paving Brick: Due to the death of William D. Uhler, M. Am. Soc. C. E., who was the Society's representative on the Committee to co-operate further with the

U. S. Department of Commerce in the consideration of the possibility of the elimination of excess variety and style in paving brick, it was necessary to appoint some one to fill the vacancy. President Loweth appointed R. Keith Compton, M. Am. Soc. C. E., as such representative and a letter dated February 27, 1923, from Mr. Compton, accepts such appointment.

Adjourned at 4:50 P. M., to meet at 2 P. M., March 12, 1923, at Society Headquarters.

ABSTRACT OF MINUTES OF MEETING OF EXECUTIVE COMMITTEE,
MARCH 12, 1923

The Executive Committee met at 2:05 P. M.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, Messrs. Holland, Ridgway, Winsor, and Treasurer Hovey.

REARRANGEMENT OF THE FIFTEENTH FLOOR

On motion, the plan showing the arrangement of offices at the east end of the Reading Room, as submitted by the architect, was approved. (This is substantially as submitted to the Board in January, 1923.)

The proposed portières for the Board Room, tinting of ceiling, preservation of the mahogany veneer, new type of lighting, and possible re-arrangement of the entrance hall, were deferred for further report by the Committee on Rearrangement of the Fifteenth Floor.

On motion, it was decided to receive bids for the work.

CONTRACT FOR BUST OF CAPTAIN EADS

The Secretary read the proposed agreement with Charles Grafty, sculptor, for making the Eads' Bust, which has received the approval of the Committee of the Board to collect funds for the bust of Captain Eads. A letter from Chairman Wall of the Committee was read suggesting the insertion in the contract of a provision that the bust, when completed, must be satisfactory to the Committee on Art of the Hall of Fame as a work of artistic merit. The agreement was forwarded for the approval of the Executive Committee and the authorization for the President to sign it, after which one copy of it is to be forwarded to Mr. Grafty with a check for \$600, this being the first payment of the \$3 000 agreed upon. \$1 500 is to be paid when the model is ready for casting in plaster; and the final balance of \$900 is to be paid when the bust is completed in bronze and in place. (\$3 163 is the net amount of subscriptions received to date in this matter.)

On motion, this agreement was approved, on the recommendation of the Committee of the Board, with the insertion of the provision suggested by Chairman Wall.

DIVISION OF ENGINEERING, NATIONAL RESEARCH COUNCIL

It was reported that the term of H. Hobart Porter, M. Am. Soc. C. E., as one of the Society's representatives on the Division of Engineering of National Research Council will expire on June 30, 1923. Under the rules Mr. Porter is not eligible for re-election at the present time as the By-laws provide that representatives who have served a 3-year period are not eligible for re-election until after the lapse of one year.

On motion, the President was authorized to fill this vacancy.

SPECIAL COMMITTEE ON FIRE PREVENTION

President Loweth reported that he would appoint Benjamin Thompson, M. Am. Soc. C. E. (John F. Coleman, M. Am. Soc. C. E., alternate), as Chairman of the Special Committee on Fire Prevention, to take the place

of the former Chairman, Frank W. Hodgdon, M. Am. Soc. C. E., who died on January 26, 1923. This action does not add to the number of members on the Committee. Due to the death of its Chairman, the Committee was granted an extension of time, in which to make its report, to November 15, 1923.

PROPOSED SPECIFICATIONS OF FEDERAL SPECIFICATIONS BOARD FOR
COAL-TAR PITCH FOR ROOFING, ETC.

A letter dated March 6, 1923, was presented from the American Engineering Standards Committee forwarding proposed specifications of the Federal Specifications Board for Coal Tar Pitch for Roofing, Surfacing Materials for Bituminous Built Up Roofing, Sheathing Paper and Unimpregnated Rag Roofing Felt, and Coal Tar Saturated Rag Felt for Roofing and Waterproofing, and inviting the Society to submit these proposed specifications to a representative, or representatives, who are in a position to determine to what extent they are satisfactory, such criticism to be treated as wholly informal and not binding on the Society.

On motion, the President was authorized to appoint such representative, or representatives, without mileage.

On motion, it was further decided that Society representatives appointed to criticize specifications submitted by the American Engineering Standards Committee are to be requested to serve with the understanding that no mileage or other compensation will be allowed.

Adjourned at 5 P. M., to meet at 2 P. M., March 31, 1923, at Society Headquarters.

ABSTRACT OF MINUTES OF MEETING OF EXECUTIVE COMMITTEE,
MARCH 31, 1923

The Executive Committee met at 2:15 P. M.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, Messrs. Holland, Ridgway, Webster, Winsor, and Treasurer Hovey.

REARRANGEMENT OF THE FIFTEENTH FLOOR

Director Richard L. Humphrey, Chairman of the Committee on the Rearrangement of the Fifteenth Floor, and Mr. Arnold W. Brunner, the architect, were also present by invitation.

The sketches supplied by the architect were inspected, showing alternative arrangements for the entrance, with wainscoting of wood and of marble. The entire matter of the proposed re-arrangement of the Fifteenth Floor was discussed in detail.

On motion, unanimously carried, the Executive Committee accepted the recommendation of the Committee on the Re-arrangement of the Fifteenth Floor, and the architect, to award the contract for these improvements, including the marble floor and marble wainscoting to the lowest bidder, Messrs. Prosnitz Glover Company, Incorporated, at \$11 616. This is exclusive of the architect's fee and the cost of the portières which are to be hung across the arches in the corridor and also in the Board Room.

It is understood that the Committee on Re-arrangement of the Fifteenth Floor will secure bids on the cost of the portières.

SOCIÉTÉ DES INGÉNIEURS CIVILS DE FRANCE INVITES SOCIETY TO SEND DELEGATES
TO ITS SEVENTY-FIFTH ANNIVERSARY

President Loweth reported that in response to a letter of February 28, 1923, to him from the President of the Société des Ingénieurs Civils de France that this Society be represented at its Seventy-Fifth Anniversary to be held

in Paris on May 4-6, 1923, he had appointed J. M. Ewen, M. Am. Soc. C. E., as such delegate from this Society.

SOCIÉTÉ D'ENCOURAGEMENT POUR L'INDUSTRIE NATIONALE INVITES THE PRESIDENT OF THE SOCIETY TO BE PRESENT AT CEREMONIES IN CELEBRATION OF ITS 122D ANNIVERSARY

The translation of a French letter was presented, dated March 14, 1923, from President Bach of the Society inviting this Society to participate in the ceremonies in celebration of its 122d Anniversary to be held in Paris, June 7-10, 1923.

On motion, the President was authorized to appoint the necessary representatives in this matter.

INTERNATIONAL CONGRESS OF CITY PLANNING AND MUNICIPAL HYGIENE, STRASBOURG, 1923

The translation of a French letter was presented, dated February 10, 1923, from the Commissioner General of the Department of Hygiene of the International Congress of City Planning and Municipal Hygiene, to be held in Strasbourg, asking authority to place the name of this Society among the patrons. A fee amounting to 25 francs is asked for filling out the blank forwarded. Nelson P. Lewis, M. Am. Soc. C. E., was asked for advice as to the worthiness of this project and a favorable reply from him was also presented.

On motion, it was decided to pay the 25 francs and to allow the Society's name to be used as a patron of the Congress.

DISTRICT REPRESENTATION

Hereafter, the Director of a District, the territory of which has been changed, is to represent the District as now constituted and not as it was when he was elected. States which would not otherwise be represented are to be allocated to the care of the Director who can most conveniently represent them.

For 1923, Mexico and the State of Texas were allocated to Director Anderson; Oklahoma to Director Darrow; and Louisiana to Director Brown. (Director Anderson would then represent Southern California, Arizona, Utah, Wyoming, Colorado, New Mexico, Texas, and Mexico; Director Darrow would represent Nebraska, Kansas, and Oklahoma; and Director Brown, Missouri, Arkansas, and Louisiana.)

COMMITTEE ON PRIZES

On motion, the President was authorized to appoint the Committee on Prizes for 1923. This Committee should report to the Board at its October Meeting to enable the prizes to be awarded at the next Annual Meeting.

COMMITTEES ON DISTRICTS AND ZONES

On motion, the President was authorized to appoint a Committee on Districts and Zones. This Committee should report to the Board at its meeting in January, 1924, and in view of the fact that changes may be made in the present districting and zoning, it is thought desirable to give the Committee ample time in which to make its report.

SPECIAL COMMITTEE ON FIRE PREVENTION

Correspondence was presented with Benjamin Thompson, M. Am. Soc. C. E., who was appointed by President Loweth to take the place of the late Chairman Hodgdon of the Committee on Fire Prevention. Mr. Thompson inquired as to expenses which he estimated at \$462.06 for a meeting in New York, which he states seems to be the most suitable place.

On motion, \$400 was appropriated to this Committee for mileage at the regular rate allowed Special Committees and final report is to be requested by November 15, 1923.

MILEAGE TO SOCIETY REPRESENTATIVES ON JOINT COMMITTEE ON STANDARD SPECIFICATIONS FOR CONCRETE AND REINFORCED CONCRETE

The question was raised as to paying mileage amounting to \$296.88 to the representatives of the Society on the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete for attendance at a meeting held in Cincinnati, Ohio, January 21-27, 1923, at the same time and place as the meeting of the American Concrete Institute. The rules prohibit the payment of mileage, unless specially authorized, to members of Committees attending meetings held at the same time and place as the meetings of this or other Societies.

On motion, it was decided to allow the mileage in this instance.

WASHINGTON AWARD

On motion, the President was authorized to fill the vacancy which will occur on the Washington Award because of the expiration of term on June 1, 1923, of Charles D. Marx, Past-President, Am. Soc. C. E., as one of the Society's representatives.

ALFRED NOBLE MEMORIAL COMMITTEE

On motion, Messrs. Bion J. Arnold, J. V. Davies, and John W. Lieb were appointed as additional members of the Alfred Noble Memorial Committee.

Adjourned at 5:05 P. M.

COMMITTEE ON STATUS OF THE CIVIL ENGINEER IN GOVERNMENT WORK

The Chairman of the Committee to Consider the Whole Question of the Status of the Civil Engineer in Government Work and His Compensation, reported progress and moved that the Committee be discharged, which motion was carried.

After discussion of the reorganization of Government Departments suggested by the President of the United States and his Cabinet, the following motion was carried:

"That a Committee of three be appointed by the President to give this whole question consideration and report back to the Board sometime later during its present session."

The President appointed Messrs. Holland, Davis, and Grunsky as such Committee.

This Committee reported at the evening session and the final result was the adoption of the following two sets of resolutions:

"Resolved, that the Board of Direction of the American Society of Civil Engineers endorses and commends the recommendations of the President of the United States and his Cabinet, that the military and non-military engineering activities of the Government be separated and that the design, construction and maintenance of non-military public works be assembled as far as practicable in one department, under one head, and that only those activities closely related thereto be included in that department. We also commend the effort to apply similar principles to all the departments, and to allocate the numerous independent offices to appropriate departments so far as possible. We believe such action will tend to eliminate duplication, to co-

ordinate public activities, and in many ways to promote economy and efficiency in the public service.

"Resolved, that the President of this Society be empowered to appoint a committee of five members of this Society of which he shall be Chairman, to present the above resolution to the President of the United States and to appropriate officials of the Congress, and of the Executive Departments, and to take such other action as it deems wise in furtherance of the principles above, endorsed.

"Resolved, that the sum of one thousand dollars, or so much thereof as necessary, be hereby appropriated to defray the expenses of the action above authorized.

"Whereas, The appointment of a committee of five members of this Society with the President of this Society as Chairman has been authorized by the Board to present a resolution to the President of the United States regarding the separation of military and non-military activities of the Government, therefore be it

"Resolved, that the same Committee be instructed to confer with the officials of other National engineering societies with a view to formulating some permanent workable method of joint co-operation on public matters and report its recommendations to the Board."

At the morning session of April 17, 1923, \$1 000, or as much thereof as necessary, for its expenses was appropriated for the Committee to take up with the other National Societies the question of co-operation in public matters.

COMMITTEE ON BENEVOLENT FUND

The Chairman of the Committee to Investigate and Report in Regard to the Desirability of Creating a Benevolent Fund reported progress. The Secretary presented the following replies received from Sections, and individuals, in this matter:

Section.	Date of Meeting.	Number Present.	Action.
Cleveland	Jan. 10, 1923	18	Unanimous vote opposed.
Detroit	Jan. 26, 1923	30	Section opposed to creation of Fund.
Duluth	Feb. 19, 1923	29	Opposed.
Kansas City . . .	Dec. 12, 1922	14	Fund not needed, but Section does not object, if Society's funds are not used for maintenance.
Los Angeles . . .	Jan. 10, 1923	61	Section heartily approves.
Nebraska	Jan. 13, 1923	14	Section endorses report of Board as per motion carried at previous meeting (minutes not available.)
New York	Feb. 23, 1923	About 110 including guests.	Referred to Committee, to report at April meeting.
Sacramento . . .	Jan. 26, 1923	(?)	Report of Committee adopted, approving Fund, with suggestions for administering.
San Diego	Mar. 27, 1923	10	Unanimous vote in favor.
San Francisco . .	Feb. 20, 1923	89	Welfare Committee of the Section reported disapproving of the creation of such a Fund.

The individual opinions are as follows:

W. C. Briggs, Hartsdale, N. Y. Opposed—gives reasons

S. Whinery, New York City. Opposed—gives reasons

After discussion the following motion was carried:

"That this matter be deferred to the Chicago Meeting in July and a further effort be made to get an expression of opinion from the different Sections."

COMMITTEE ON FEDERAL CHARTER

The following report was presented from the Committee on Federal Charter:

"APRIL 6, 1923

"TO THE BOARD OF DIRECTION OF THE

"AMERICAN SOCIETY OF CIVIL ENGINEERS,

"29 West 39th Street, New York, N. Y.

"Since the Progress Report of this Committee dated June 16, 1922, was submitted by Mr. C. M. Holland, June 19, at Portsmouth, N. H., the Committee has received from Messrs. Parker and Aaron, Counsellors, the opinion, dated July 13, 1922, which is enclosed.

"Your Committee does not think it either expedient or feasible to act otherwise than in entire consonance with the tenor of this opinion; and accordingly now asks to be discharged.

Respectfully submitted,

N. C. GROVER,

C. M. HOLLAND,

CLEMENS HERSCHEL, *Chairman*.

"Enclosure:

"JULY 13, 1922.

"CLEMENS HERSCHEL, Esq.,

"*Chairman*, Committee on Federal Charter,

"American Society of Civil Engineers,

"2 Wall Street, New York City.

"DEAR MR. HERSCHEL.—Since the receipt of your letter of June 6th, 1922, we have further considered the inquiry you make as to the suggestion that the American Society of Civil Engineers procure a Federal Charter. We beg to report:

"(1) Assuming that the purposes of the Society under the Federal Charter would be the same as those under its existing incorporation, there would be no change in the tax situation.

"(2) We are assuming that it is not desired to organize a local corporation under the code of the District of Columbia. On that assumption the first requisite to carry out the proposed purpose will be to secure the passage of a special act of Congress creating the new corporation authorizing it to take over the corporate functions of the American Society of Civil Engineers.

"(3) There is no provision under the New York law for the merging of a society like the American Society of Civil Engineers into a Federal corporation or authorizing the transfer without consideration of the assets of the A. S. C. E. to a Federal corporation. As the A. S. C. E. is a New York corporation, its acts would have to comply with the New York law. Congress, even if it were so minded, would have no power to direct that the assets and functions of the A. S. C. E. be taken over by the proposed new Federal corporation. Such taking over must be done in compliance with the laws of the

State of New York. It thus becomes apparent that another pre-requisite for the consummation of the suggested plan is an act of the legislature authorizing the transfer of the assets of the A. S. C. E. to the proposed Federal corporation and to the vesting in the latter of the functions of the A. S. C. E.

"It will probably not be practicable to secure such legislation or effect the proposed transfer without substantial unanimity of your membership and directors, since it is not likely that the legislature or Governor would as a matter of discretion summarily turn over the assets and property of the present corporation to another over the protests of a substantial number of persons interested.

"(4) In this connection we should call your attention to an investment made by your Society in the United Engineering Society. You will recall that the investments made by each of the four Founder Societies in the U. E. S., amounting to very large sums, are represented by Treasury Receipts. Those Treasury Receipts provide that no right to recover any of the principal or interest shall exist so long as the U. E. S. shall be in existence and perform its corporate functions. They further provide that they shall become void as an evidence of indebtedness or obligation to the respective Founder Societies in case any of the latter shall for any cause cease to have representation upon the Board of Trustees of the U. E. S. The effect of those provisions would be that the American Society of Civil Engineers by extinguishing itself would forfeit its investment in the U. E. S. Such effect could only be obviated by the unanimous consent of the other Founder Societies.

"(5) In the foregoing we have, so far as assets are concerned, dealt only with assets which are held absolutely by the A. S. C. E. without any trust obligations with respect thereto. If it be concluded to proceed further with the matter, it will be our duty to take up minutely all property held by the Society for trust purposes to determine what will be the fate of the trust and the property created. As a general proposition, where it becomes impracticable to carry out a trust in precise accordance with the provisions of the instrument creating it, the Supreme Court will be charged with the power of determining its future administration provided the fund does not revert to the donor. Of course where a donor contributes a trust fund to be administered by the U. E. S., the latter society has no right to turn that trust over for administration to another society, for such was not the wish of the donor. With reference to such case we should, roughly speaking, make a showing to the Supreme Court that by reason of the fact that the A. S. C. E. is going out of existence it becomes impossible to administer the trust in exact conformity with the terms of the instrument creating it and that the purposes of the donor can be best subserved by turning over the fund and its administration to its successor, the new corporation, and pray the Court to act accordingly. The Court will not be absolutely bound to do so and it may be that the Court will hesitate to turn the fund over to a corporation beyond its jurisdiction. In any event the Court will not be able to give its assent to such prayer without the consent of the donor or grantor if he be living.

"(6) Assuming that the Federal corporation is authorized to operate with the same powers as those possessed by the existing corporation, it will have no advantages of power, privileges or immunities over those possessed by the A. S. C. E. No one can say whether Congress would or would not confer special or extraordinary privileges on the new corporation, but presumably it would not.

"Very truly yours,

"PARKER AND AARON."

On motion, this report was received and adopted and the Committee discharged.

Recess was taken for luncheon at 12:30 P. M.

The Board reconvened at 2 P. M., with the same attendance as in the forenoon.

ENGINEERING FOUNDATION SUGGESTS THAT THE SOCIETY CONNECT ITS RESEARCH COMMITTEES WITH FOUNDATION

A progress report for the Board of Direction from Alfred D. Flinn, Director of Engineering Foundation, under date of April 12, 1923, was presented. In this report Secretary Flinn described several important recent developments in the work of Engineering Foundation.

In the ensuing discussion, the Secretary reported the following letter dated April 12, 1923, which he had received from Mr. Flinn:

"Responding to your letter of April 9, and replying further to President Loweth's letter of February 7, it is a pleasure to inform you that at a special meeting on April 11, Engineering Foundation took the following actions:

"*Voted:* That Engineering Foundation appropriate \$1 000 to the American Society of Civil Engineers for its investigation of Concrete and Reinforced Concrete Arches, the Foundation not to make further commitments in respect to this investigation until an estimate of the fund needed shall have been presented.

"*Voted:* That Engineering Foundation appropriate \$5 000 to the American Society of Civil Engineers for its investigation of Steel Columns; \$1 000 for the year 1923, and \$2 000 each, for 1924 and 1925, the second and third installments being conditioned upon evidence satisfactory to the Executive Committee of Engineering Foundation that the investigation is properly financed."

"The limitation in the vote on concrete arches is due to the fact that your letters contain no suggestion in figures as to the cost of this project. The condition in the vote on steel columns is intended to assure the proper proportion of contributions from other sources.

"These appropriations can be supplemented by the resources of knowledge and professional connections of the members and staff of the Foundation, some office facilities, and visits to libraries or offices in New York. The Foundation can assist your committees, also, in obtaining co-operative contributions of funds, materials, and services, and can serve as treasurer and disbursing officer for either committee, if desired, as it has been doing for other projects.

"The extent of possible co-operation can best be determined by trial, and will increase as the resources of the Foundation increase.

"Details of payments under these appropriations and other co-operation will be arranged with you at your convenience."

The function of Engineering Foundation was discussed and the policy of the Society toward it, as well as the question of the Society's research work, and the work of the Division of Engineering of the National Research Council, was also mentioned.

On motion, this whole matter was referred to the Committee on Research for report later and just before the adjournment of the afternoon session on April 17, 1923, the Chairman of the Research Committee submitted the following:

"That the Board of Direction accept the financial assistance of Engineering Foundation in the research work of the Committee on Steel Column Research, and the Committee on Concrete and Reinforced Concrete Arches

of the American Society of Civil Engineers offered by Engineering Foundation in the letter of Director A. D. Flinn to Secretary Dunlap of April 12, 1923, and as a much larger sum will be necessary to carry on the work satisfactorily and as the Society is conducting other research work from its own funds, that the Board ask Engineering Foundation to undertake soliciting contributions to a much larger fund for the Committee on Steel Column Research; that the Committee on Research be asked to submit to the Executive Committee an estimate of the amount of money needed to carry on the proposed research work of the Committee on Concrete and Reinforced Concrete Arches on which a presentation may be made to Engineering Foundation for the solicitation of adequate funds for that Committee; and that the Board of Direction, feeling that the amount of the funds now provided is far from sufficient, express the hope that Engineering Foundation will be successful in raising funds of adequate amounts."

On motion, the foregoing was carried unanimously.

A motion that the Board of Direction invite the co-operation of the Division of Engineering of the National Research Council in the work of the Committee on Impact in Highway Bridges of the Society, and that this Committee be authorized to co-operate with the Division of Engineering, was carried unanimously.

REPORTS FROM PUBLIC RELATIONS COMMITTEE

The following report of the Public Relations Committee was ordered received and placed on file:

"APRIL 10, 1923.

"TO THE BOARD OF DIRECTION

"AMERICAN SOCIETY OF CIVIL ENGINEERS.

"GENTLEMEN.—The Public Relations Committee received on February 21 from the Secretary, letter dated January 8, 1923, from Mr. Edwin J. Prindle, Chairman, Patents Committee, American Engineering Council, relative to the Sterling-Lehlbach Re-classification of Salaries, Bill H. R. 8928, which has been referred to the Committee by action of the Board, January 19, 1923.

"This Bill proposed an increase of professional salaries recommended by the Senate Civil Service Committee.

"On account of the late date on which this was received, it was impossible for the Chairman to submit the matter to the other members of the Committee and receive their replies in time to be of any benefit. Therefore, he acted on his own initiative and wrote to the Hon. Reed Smoot, Senator from Utah, the following letter:

"On behalf of the American Society of Civil Engineers, I respectfully call your attention to the Sterling-Lehlbach Re-classification of Salaries Bill H. R. 8928, and urge that this Bill be passed at the present session of Congress.

"My understanding is that it has already passed the House by a large majority and remains only to be acted upon by the Senate.

"Respectfully,

"(Signed) BAXTER L. BROWN, *Chairman*,

"Committee on Public Relations, A. S. C. E."

"The members of the Committee were also notified of this action, which was later approved by them.

"Just before the adjournment of Congress, this Bill, with some minor changes, was passed. Therefore, the Committee considers the matter closed.

"Respectfully submitted,

"BAXTER L. BROWN, *Chairman.*"

The Committee also presented a report concerning the seasonal demand of construction for labor, materials, and transportation.

After discussion, the following motion was carried by an "aye" and "no" vote:

"That the matter be referred to the Committee on Technical Activities and Publications and that they be empowered to prepare a digest, or publish it in full, and transmit it to the Local Sections if published, with the request that it be made a matter of discussion by them and that they report back to the Board of Direction."

The third report of this Committee was presented as follows:

"APRIL 10, 1923.

"TO THE BOARD OF DIRECTION,

"AMERICAN SOCIETY OF CIVIL ENGINEERS:

"GENTLEMEN.—The Executive Committee, at the meeting held March 1, 1923, referred to the Public Relations Committee, letter of Mr. R. C. Marshall, Jr., General Manager of the Associated General Contractors of America, dated February 6, 1923, in which attention is called to 'the alarming situation brought about by the trend towards higher prices throughout the entire list of subjects that have to do with construction.' The letter also pointed out that this trend of higher prices was liable to bring about what might be termed a 'buyers' strike.'

"It also requested an expression of opinion as to what can be done in this matter and what steps, if any, the Society would take in connection therewith. This Committee is of the opinion that the questions involved in this letter are so far-reaching that it is beyond its scope, and recommends that the Board notify the Associated General Contractors that it will be pleased to join the Associated General Contractors of America and other interested organizations in an intelligent discussion and well directed effort to better existing conditions. After further consideration with other organizations, it might be well to present the basic questions involved to the Local Sections for discussion, especially if there could be co-operative effort locally between the contractors and other organizations with our organization.

"Respectfully submitted,

"BAXTER L. BROWN, *Chairman.*"

Chairman Brown moved the approval of the following excerpt from the report of his Committee concerning the possibility of a "buyers' strike":

"This Committee is of the opinion that the questions involved in this letter are so far-reaching that it is beyond its scope, and recommend that the Board notify the Associated General Contractors that it will be pleased to join the Associated General Contractors of America and other interested organizations in an intelligent discussion and well directed effort to better existing conditions. After further consideration with other organizations, it might be well to present the basic questions involved to the Local Sections for discussion, especially if there would be co-operative effort locally between the contractors and other organizations with our organization."

This motion was seconded, but a substitute motion was offered, as follows:

"That the President communicate with Secretary Hoover to the effect that if he decides to call such a conference the American Society of Civil Engineers will be glad to co-operate with him in any way."

This substitute motion was amended to the effect that reply in this matter should also be made to the Associated General Contractors of America as the original communication was received from that Association. The substitute motion as amended was then passed.

PROPOSED AMENDMENT TO ARTICLE I, SECTION 1, OF THE BY-LAWS

Notice of the following proposed amendment to the By-Laws having been reported to the Board at its meeting of January 16, 1923, this amendment was presented for final action as follows:

Change the last paragraph of Section 1, Article I, of the By-Laws by omitting the words, "not resident in Continental United States", making the sentence read:

"Application of engineers who may be so situated as not to be personally known to five Corporate Members, may be recommended for ballot by five members of the Board of Direction after having secured evidence sufficient, in their opinion, to show that the applicant is worthy of admission."

After discussion, a show of hands was had, resulting in 7 "ayes" and 11 "noes".

The President declared the proposed amendment to the By-Laws lost.

ADOPTION OF AMENDMENT TO ARTICLE I, SECTION 2, OF THE BY-LAWS

Notice of the following proposed amendment to the By-Laws having been reported to the Board at its meeting of January 16, 1923, this amendment was presented for final action as follows:

Change the first sentence of Article I, Section 2, by omitting the words "whose address is known" and substituting therefor "entitled to receive the publications of the Society", making the sentence read:

"At stated periods, to be determined by the Board of Direction, there shall be issued to each member in any grade entitled to receive the publications of the Society, a list of all new applications received for admission or transfer, which list shall be dated and shall contain a concise statement of the record of each applicant and the names of his references, with a request that members transmit to the Board any information in their possession which may affect the disposition of the application."

On motion, this amendment was adopted.

ADOPTION OF AMENDMENT TO ARTICLE II, SECTION 4, OF THE BY-LAWS

Notice of a proposed amendment to Article II, Section 4, of the By-Laws, having been reported to the Board at its meeting of January 17, 1923, this amendment was presented for final action as follows:

"The Board of Direction may, for sufficient cause, temporarily or permanently excuse from the payment of annual dues any member who from ill health, advanced age, or other good reason assigned, is unable to pay such dues; and the Board may remit the whole or part of dues in arrears, or accept in lieu thereof, desirable additions to the library, or collections. The Board of

Direction may, for sufficient cause, remove from the list of those permanently excused from dues any name thereon."

On motion, this amendment was adopted.

PROPOSED AMENDMENT TO ARTICLE IV OF THE BY-LAWS

The Executive Committee at its meeting of February 2, 1923, decided to recommend to the Board that the Committee on Special Committees be eliminated and the responsibilities of that Committee taken over by the Executive Committee and the Committee on Research, and the By-Laws changed accordingly.

In accordance with the foregoing, notice was given of the following proposed amendments, which will come up for final action at the next meeting of the Board:

Amend Article IV, Section 1, 7th line, by omitting the sentence, "A Committee on Special Committees;" also omit Section 5 of this Article, as follows:

"The Committee on Special Committees shall consist of three members of the Board of Direction and shall oversee, on behalf of the Board of Direction, all the work of special committees, and pass upon and approve all expenditures of such special committees, and shall from time to time make a recommendation to the Board of Direction concerning the progress of the work of such special committees with recommendation for further work or modification of or cessation of work of such special committees."

Change the second paragraph of present Section 7 of this Article by omitting the words "procedure and"; by changing the words "permanent Committee on Special Committees" to "Executive Committee"; by omitting the words "with overseeing"; and by substituting for the clause following the comma after the word, Board, the following, "both with the approval of all such expenditures and with the supervision of all Special Committees other than those placed by the Board within the jurisdiction of the Standing Committee on Research," making the paragraph read:

"*Government.*—All special committees shall report on all matters relating to expenditures to the Executive Committee of the Board of Direction, which Committee is charged, on behalf of the Board, both with the approval of all such expenditures and with the supervision of all Special Committees other than those placed by the Board within the jurisdiction of the Standing Committee on Research."

PROPOSED AMENDMENT TO ARTICLE IV OF THE BY-LAWS

The Executive Committee at its meeting of March 12, 1923, decided to recommend to the Board of Direction the adoption of an amendment to the By-Laws by adding the following new paragraph to Article IV, Section 2, and accordingly notice of such proposed amendment was given, and it will come up for final action at the next meeting of the Board:

"In the interim between January 1, and the adoption by the Board of Direction of the Budget for the ensuing year, the Executive Committee shall have authority to make appropriations for the payment of routine bills."

RESEARCH COMMITTEE MADE A STANDING COMMITTEE OF THE BOARD

On motion, the Committee on Research was made a Standing Committee of the Board.

Notice was given of a proposed amendment to Article IV of the By-Laws covering this matter, which will come up for final action at the next meeting of the Board.

This will amend Article IV, Section 1, by adding to the list of Standing Committees the words "A Committee on Research"; and by adding a new section to take the place of Section 5 on the Committee on Special Committees, as follows:

"5.—The Committee on Research shall consist of not more than nine members, at least one being a member of the Board of Direction. Its duties shall be to organize, stimulate and supervise the research work of the Society as conducted by its committees or through co-operation with societies and individuals, in accordance with the directions and regulations of the Board."

METHOD OF HANDLING APPLICATIONS

The Board at its meeting of January 16, 1923, considered the original report of the Committee to Formulate a Plan for Acting on Applications for Membership, together with a statement from the Secretary, as requested. The action taken was the appointment of Messrs. Talbot, Winsor, and the Secretary, as a Committee authorized to make certain editorial changes in the definitions to be given on the proposed new application form. This new application form was then to be adopted, and the whole matter was referred back to the original committee (Messrs. Wall, Hoyt, and Clark), and made the order of business at this meeting.

The following proposed revised definitions, to be used in connection with the consideration of membership applications, were presented by the Secretary as the report of Past-President Talbot's Committee, it being understood that these definitions are now adopted as well as the new application form:

"To assist the Board the total time of practice after graduation is divided into two general classes, the period of sub-professional work and of professional work. During the period of professional work, the years of responsible charge and of design are to be indicated."

The following definitions have been adopted:

"Sub-professional work is to cover the time spent as Rodman, Chainman, Instrumentman, Inspector, Recorder, and Draftsman; and all minor positions in which the responsibility is slight and the individual performance of a task, set and supervised by a superior, is all that is required. No account is to be taken of work done before the applicant is 18 years old, but each academic year, successfully completed in an engineering college without graduation, shall be counted as one-third year of sub-professional work.

"Professional work shall include all the time after the applicant is 21 years old, during which he has been occupied in engineering work of a higher grade and responsibility than that above defined as sub-professional work. Time spent in engineering-graduate work and in engineering teaching subsequent to graduation shall be listed as professional work.

"Responsible charge of work means:

"1. In the field, the applicant must have had the direction of work, the successful accomplishment of which rested upon him, where he had to decide questions of methods of execution and suitability of materials without relying upon advice or instructions from his superior, and of supplying deficiencies in plans or correcting errors in design without first referring them to higher

authority for approval, except in cases where such approval is a mere matter of form.

"2. In the office, the applicant must have had to undertake investigations, or to carry out important assignments, demanding resourcefulness and originality, or to make plans, write specifications and direct the drafting and computations for designs of engineering work, with only rough sketches, general information and field measurements for reference and guidance.

"3. In engineering teaching, the applicant must have taught in an engineering school of recognized reputation, and must have had at least a grade of assistant professor or its equivalent.

"Design means all that is given above as responsible charge of work in the office, and more. One qualified to design must be able, in the case of any desired piece of engineering, to meet the exigencies of the case, to fulfill the requirements of local circumstances and conditions, and yet not violate any of the canons of engineering. His plan, when executed, must successfully answer the purpose for which it was designed."

The following report from Chairman Wall of the original Committee in this matter, was presented:

"St. Louis, Mo., April 12, 1923.

"BOARD OF DIRECTION

"AMERICAN SOCIETY OF CIVIL ENGINEERS

"New Orleans, Louisiana.

"GENTLEMEN.—As requested in resolution of January 15th, your Committee on Membership Applications has reviewed the comments of December 29th, 1922, of Mr. Dunlap on the Committee's report of January 16th, 1922.

"In this review we find that, with one exception, there is general accord between the ideas of Mr. Dunlap and those of the Committee, the one exception being in regard to the mechanical ratings.

"With respect to the mechanical ratings: These were intended only as a guide to show the relative position of the various candidates, it being expected that final decision would be made after complete review of the candidate's record. Therefore the Committee considers that there is no constitutional objection to such rating and continues to believe that the rating would be of great value in eliminating inequality in election. For example, at one meeting of the Membership Committee a man may be elected associate member while at the next meeting a man with similar qualifications may be elected junior member. If the candidates had been rated mechanically, the rating would have indicated that the two men probably should belong in the same grade, and special consideration could have been given to determine which was the proper grade.

"The Committee again recommends that the report be adopted with the provision that the Secretary be authorized to make such adjustments of details as may be necessary to fit into the work of his office, and we ask to be discharged.

"Very truly yours,

"EDWARD E. WALL, *Chairman*,

"Committee to Formulate a Plan for Acting
on Applications for Membership."

On motion, this report was received and the Committee discharged.

There was extended discussion of this matter, including the possibility of a mechanical rating and the advantage of having Local Membership Committees.

It was moved that the recommendation in the report from the standpoint of the Secretary's Office, outlining the method of procedure for handling applications for membership and transfer, be concurred in and adopted.

An amendment was offered: "That the record in the list of candidates be not abbreviated beyond what is the present practice."

The amended motion was then carried by an "aye" and "no" vote.

On motion, the President was authorized to appoint a committee to investigate further a method of mechanical rating of applications for the use of the Board members only.

The President subsequently appointed Messrs. Mason, Chester, and Fenkell as such Committee.

At the evening session of April 17, 1923, the Secretary brought up the question of Local Membership Committees and suggested as procedure to be followed in organizing them that each Director be asked to make recommendations for the action of the Executive Committee in regard to the Local Membership Committee in his District. The Secretary was asked to outline by letter to the Board the necessary procedure.

EMPLOYMENT SERVICE

Messrs. Edgar S. Nethercut and J. P. H. Perry were appointed by then President Freeman (in accordance with authority granted at the Executive Committee Meeting of November 17, 1922) as the Society's representatives on a Joint Committee to look into the whole question of Employment Service. (The Budget for 1923 carries an item of \$1 650 for this Service.)

The following is the report of this Joint Committee together with a Minority Report and letters of comment from two of the members of the Joint Committee:

REPORT OF THE JOINT COMMITTEE OF THE FOUR NATIONAL ENGINEERING SOCIETIES ON EMPLOYMENT SERVICE, MARCH 17, 1923

To:

MR. C. F. LOWETH, *President*, Am. Soc. C. E.
MR. E. P. MATHEWSON, *President*, A. I. M. and M. E.
MR. JOHN LYLE HARRINGTON, *President*, A. S. M. E.
DR. F. B. JEWETT, *President*, A. I. E. E.

Purpose.—

To study the various phases of the Engineering Societies Employment Service and advise the governing bodies of the respective Societies as to what in their opinion is the best and most practical method of dealing with this problem.

Origin of Committee.—

This Committee consists of two appointees from each of the four National Engineering Societies. The appointments were made in each case by the respective Society President during the month of November, 1922, and were as follows:

American Society of Civil Engineers: J. P. H. Perry, E. S. Nethercut.
American Institute of Mining and Metallurgical Engineers: F. T. Rubidge, J. V. W. Reynnders.
American Society of Mechanical Engineers: Professor J. W. Roe, E. W. Swartwout.
American Institute of Electrical Engineers: Professor W. I. Slichter, H. C. Carpenter.

Conclusions.—

A.—The members of the Committee are unanimous in the opinion:

- (1) That when it is generally known that during the year 1922 the present Employment Service filled 2 604 positions at a cost each of \$6.62 then some form of employment service either in the form of co-operative action or by each of the individual Societies is desirable, and
- (2) That it is desirable to work out a plan which would be a co-operative activity available to the four National Societies, and
- (3) That such a service should be National in scope.
- (4) That the service should be available to only the members of the four National Societies, and to the members of such other Societies as may be invited by them to co-operate.
- (5) That it is desirable that the Employment Service be free.
- (6) That there should be no charge to employers.

B.—The Committee understands:

- (1) That there is a tendency in the governing bodies, and
- (2) That there is a desire on the part of the finance committees of the Societies to have these members who use the service to obtain positions bear the expense.

Recommendations.—

The Committee recommends that the scope and service rendered by the Engineering Societies Employment Service be enlarged and developed by the four National Engineering Societies. It recognized that this cannot be done without materially increasing the expense of conducting the service. The Committee does not believe that it is practicable at this time to meet this increased expense by diverting a larger proportion of the present income of the Societies to this purpose, nor that it is practicable at the present time to increase the dues of the members to meet this situation. For the above reasons, although favoring a free service for the Society members, they feel obliged to resort to the expediency of arranging for a service which shall be partly supported by those who use it.

To accomplish this end the Committee makes the following nine (9) recommendations:

1. That the country be divided into regions based upon the geographic location of the membership of the societies, and employers.
2. That a central control office with headquarters in New York City be developed and the New York Office continued; that a local office in Chicago, Ill., be opened as soon as possible; and that other local offices in San Francisco, Calif., Denver, Colo., etc., be opened as fast as the business warrants.
3. That funds should be raised by:
 - (a) Appropriations from the four National Engineering Societies for the years 1923 and 1924, and thereafter if required, at least equal to the amounts appropriated during the year 1922 and prorated on the basis of membership. (See Exhibit A.)
 - (b) Supplementing the Society appropriations with:
 - (b-1) Contributions from the members who use the service.
 - (b-2) Contributing annuities or the interest on endowments obtained from the large foundations, individuals, corporate interests, etc., in lieu of, or in addition to, Paragraph (b-1) immediately preceding this paragraph.

- (b-3) Collections from members, who advertise for position wanted, at the cost of inserting same in the publications of the respective Societies.
- (b-4) The rendering of service to the members of other Engineering Societies or bodies having the proper standards, provided they contribute *pro rata*, to the support of the service.
- 4. That the free keyed advertising of positions available for employers and the privilege at present accorded members of promiscuously replying to the same, and the posting of Positions Available in the position books now available in the offices of the Service, the Societies, and the Library be discontinued. (See Exhibit B appended.)
- 5. That all past efforts on publicity regarding the Service be greatly enlarged and that constructive criticism be encouraged. (See Exhibit C appended for an example.)
- 6. That the Service be administered by a board of twelve composed of the four Secretaries of the four National Societies as *ex officio* members, and two members of each of the respective four Societies, one of these in each case to serve for two years, and the other for four years; upon expiration of the two-year terms all subsequent terms to extend over a period of four years; the general plan of organization to be similar to that of the Library Board.
- 7. That "Position Available" list (See Exhibit B) and other information be exchanged between the officers of the Service and those officers of other authorized Societies.
- 8. That copies of this report be furnished to the Secretaries, the members of the Executive Committees, the members of the Finance Committees and the members of the Councils or Directors of the respective Societies to acquaint them with the real facts pertaining to the employment of the members of the respective Societies, and a copy to the Manager of the Service.
- 9. That this report, together with all appendices and exhibits attached, be published in the respective publications of the four National Engineering Societies.

Factors Leading Up to Conclusions and Recommendations.—

Some of the factors which have been considered and which have guided and influenced this Committee in arriving at its conclusions and recommendations are listed as follows:

1.—For a total contribution from the F. A. E. S. and the four National Engineering Societies of \$17 240.95 in the year 1922, 2604 positions were filled (at a cost each of \$6.62) representing approximately one-half of the Society membership who used the service. Certainly the business done in 1923 and 1924 should be equally successful. The additional income from contributions, etc., is believed will permit the growth of the Service to a point where an annual budget would be somewhat as indicated by Exhibit D. Nearly all of these funds being furnished by the Service itself, thus, ultimately the Societies will be relieved from the appropriations now required.

2.—At least one of the Societies has rendered a free employment service to its members for over twenty years, the other three Societies during lesser periods ranging from six years to fifteen years, and there exists an assumed obligation to extend some form of employment service to the members.

3.—Of the total membership of the A. S. C. E., 1 109 members (11.7%) registered for positions during the four years, 1919 to 1922. Positions were found for 535 (5.65%), leaving a surplus of 574 unemployed members.

A similar situation existed among members of the A. I. M. E. for 783 (9.5%) registered, 244 (2.95%) found positions, and 539 found nothing.

In the A. I. E. E., 1 168 (9.2%) registered, 659 (5.6%) found positions, and 509 found nothing through the Service.

Another way of stating the foregoing is that out of a total of 5 347 members of the four National Societies who registered and attempted to use the service, 2 931, or 56%, actually secured jobs. These detailed figures by each Society are as follows:

A. S. C. E.—48%	of those attempting to use the Service secured jobs.
A. I. M. E.—31%	" " " " " " " " " "
A. S. M. E.—52%	" " " " " " " " " "
A. I. E. E.—61%	" " " " " " " " " "

The seriousness of the situation may be better appreciated when it is realized that many have been unemployed from six months to nearly two years. A large proportion of those still seeking employment are members of ten or more years' experience.

Of the total combined membership of the four Societies, 12.15% registered with the Service during the past four years. This figure does not include any duplications, for once registered, always registered, though one may be transferred from the active to the inactive list. Also many more who did not register by filling out the regular application blanks, used the Service by writing letters in answer to "position available" advertisements appearing in the Society publications. (See Exhibit E appended.)

Of the total combined membership of the four Societies, 6.7% secured positions through the Service during the last four years and 2 223 additional placements were made through the advertising columns; it is not known what proportion (some were non-members) of these were members of one or more of the Societies or the Societies to which they belong, and, therefore, these figures are not included in the foregoing percentages. Though a crisis still exists, Exhibit E, appended, gives the details by years for each Society, etc.

4. During the four years, 1919 to 1922, 5 035 Engineers who were not members of any of the four Societies, but who were introduced by members, were permitted to use the service. Of this number, 1 558 secured positions. Since October 1, 1922, the Service has been denied to non-members, a considerable number of whom have applied for membership. Applicants for membership are still given the same service as members.

5. Volunteer committees have functioned as an emergency means in different parts of the country, soliciting inquiries for the Service, and advising that the Service is free. In New York City alone, over 200 members of the four National Engineering Societies made over 13 000 personal calls, of which over 8 000 interviews with big executives resulted and nearly 1 000 positions uncovered, all with the approval of the Societies. Along with this they distributed announcement cards bearing the insignia of the four Societies in the corners of same, with printed matter as follows:

"ENGINEERING SOCIETIES EMPLOYMENT SERVICE
29 West 39th St., New York City—Tel. Longacre 7100
Walter V. Brown, Manager

"A FREE SERVICE MAINTAINED BY

Amer. Soc. of Civil Engineers	Amer. Inst. of Min. & Met. Engineers
Amer. Soc. of Mech. Engineers	Amer. Inst. of Elec. Engineers

"This service representing over fifty thousand members, the greatest body of talent available in the country, stands ready to supply your needs for all classes of engineers, executives and assistants.

"Kindly be as specific as possible in regard to requirements, salary, location, and nature of work, etc.

"Applicants whose records indicate the meeting of these requirements, will be sent in person. Records or written applications will be submitted if preferred.

"PLEASE FILE FOR FUTURE REFERENCE."

A large manufacturer (The Chicago Pneumatic Tool Company) has sent over 70 000 reproductions of the foregoing card, and has already reproduced it in many of its advertisements in the twenty-nine technical papers in which it advertises. (See Exhibit C appended.) Other examples could be cited.

The volunteer committee also interested many trade and technical publications, banking papers, etc., nearly one hundred of which carried one or more editorial announcements including even more information than appears on the card referred to above. All of the work of the volunteer committee was carried on without expense to the Societies except for cards.

Notices were sent to the local section representatives of the four Societies throughout the country advising of the volunteer committee work in New York and as a result much similar work was done in other parts of the country.

6.—That the welfare of the Societies is believed to depend in a large measure upon the personal helpfulness which they extend the individual members. The Employment Service is a considerable factor when considered from the standpoint of membership. Especially is this true with respect to the younger membership of the Societies, and the recent graduates in engineering. It is estimated that between 80 per cent. and 90 per cent. of the membership of the Societies represent the employee class even though a considerable number are employers as well.

7.—A large proportion of the membership insistently demands an effective service. (See, also, Exhibit E appended.)

8.—Previous committees on employment have also advised that it would be a vital mistake to even consider cutting down the free service in either quality or quantity. It is recognized that many other recommendations have been made with respect to employment services or agencies to be conducted independently of the Societies. (See Exhibit E for quantitative information.)

9.—Co-operative movement saves time, effort, and expense in a movement like this and broadens opportunities for the membership and the profession. It also permits of a closer contact between employers and applicants when carried into a National plan through regional or sectional offices. An analysis of placements and registrations by States throughout the country shows that nearly every inquiry for service outside of the Metropolitan District has been filled. Obviously, if more inquiries came to the Service from outside of the Metropolitan District, more of the members residing in remote places could be better served. Placements and registrations bear a fairly uniform proportion irrespective of geographical location as may be found from Exhibits F, G, and H, appended. The larger a selective employment service the better the results to both employers and employees and to the profession by getting the right man in the right place.

10.—The present budget amounts to approximately one (1%) per cent. of the budgets of the Societies, whereas other Societies such as the A. A. E. with a membership of over 25 000 spends over five (5%) per cent. of its budget, and the S. A. E. with a membership of approximately 6 000, spends three and one-half (3½%) per cent. of its budget on employment.

11.—It has been the practice on the part of some of the Societies to collect registration fees from members and guests at annual meetings; to charge for luncheons; to sell technical papers; to sell advertising; the library service rendered by the four Societies through the United Engineering Society is charged for "at cost". The Committee, therefore, could see no good reason for any objection to a fair charge for an Employment Service.

12.—A review of the average "paid employment agency" shows that the desire for quick and large commercial returns defeats the value of such services in the employment of engineers. Since the war, paid agencies have refused to register engineers, and have always followed the practice of dropping a man if not placed within a month after registering. An agency plan if adopted by the four National Engineering Societies would jeopardize the tax free covenants of the Societies, their holdings, etc. To be most effective, the Employment Service must remain an activity of the four National Engineering Societies.

13.—The Committee has been very favorably impressed with the way in which the present Employment Service has been operated and wants by means of this report to carry a word of praise to the Governing Boards of the four National Societies in behalf of the Manager of the Employment Service, Mr. Walter V. Brown, who seems to have handled this job extremely well and apparently possesses qualifications peculiarly fitted to his responsibilities.

14.—The plan proposed in the recommendations is believed to satisfy all the requirements with respect to tax problems, value, and scope of service, demands of members and benefits to the profession; the plan is not one of a paid agency and therefore does not come under the employment laws, but is one in which the service is for members only and in which the members who use the service participate with the whole Society membership through their respective Societies in the expense of operating and conducting the same.

Before attaching our signatures and respectfully submitting this report, all the signers desire to emphasize that it is their earnest and sincere opinion that each of the four National Engineering Societies should continue the Engineering Societies Employment Service. The more we studied into the work done by the present Bureau and the more we looked into the demand on the part of the membership for employment service, and the more we studied the whole employment problem generally, the more certain we became that the continuing of this Service is of very great importance to the prosperous future of our respective Societies.

Respectfully submitted,

WALTER I. SLICHTER, *Chairman*, A. I. E. E.,
JOHN P. H. PERRY, *Am. Soc. C. E.*,
EDGAR S. NETHERCUT, *Am. Soc. C. E.*,
E. T. RUBIDGE, *A. I. M. E.*,
J. W. ROE, *A. S. M. E.*,
E. W. SWARTWOUT, *A. S. M. E.*,
H. C. CARPENTER, *A. I. E. E.*

A memorandum is attached indicating the views of Mr. J. V. W. Reynders, member of the Committee representing the A. I. M. E., such memorandum constituting a Minority Report.

"New York, 3 April, 1923.

"MR. C. F. LOWETH, *President*, *Am. Soc. C. E.*,

"MR. E. P. MATHEWSON, *President*, *A. I. M. & M. E.*,

"MR. JOHN LYLE HARRINGTON, *President*, *A. S. M. E.*,

"DR. F. B. JEWETT, *President*, *A. I. E. E.*

"DEAR SIRs:

"I beg to transmit herewith a memorandum of my views relating to the report of the Joint Committee of the Four National Engineering Societies on Employment Service.

"While I am in agreement as to the general principles involved, I do not feel that I can put myself in the position of recommending an enterprise

requiring a budget of \$56 000 until the subject has been thoroughly thrashed out by the Board of Directors of the A. I. M. E.

"Respectfully submitted,

"J. V. W. REYNDERS."

MEMORANDUM OF MR. J. V. W. REYNDERS

One of the Two Representatives of the A. I. M. E. on the Joint Committee of the Four National Engineering Societies on Employment Service

I approve of the form of the report of March 17, 1923, as a basis of discussion on the part of the Founder Societies but wish to reserve judgment in respect of the recommendations until the subject has been fully considered by the Directors of the Mining Engineers. The following are some of my preliminary comments, using the designations in the body of the report:

A.—(1).—

While the number of positions filled during 1922 divided into the cost is \$6.62, there is a wide discrepancy in regard to the cost to the Mining Engineers, the cost per job in this case being apparently nearer \$50.

Recommendations.—

2. The extension of the Service provides that a Chicago office be opened "as soon as possible", and other offices "as the business warrants". The only definite plan concerns itself with New York City and leaves the service to be concentrated there.
3. (a) Committing the Societies to future appropriations at least equal to the present amounts involves the assumption of an indefinite and contingent liability. No means is provided for withdrawal from the proposed arrangement.
3. (b) It is very unlikely that contributions will be received through endowments, foundations, etc.
8. Presumably it is not intended to submit copies of the report to the various individuals mentioned until the same has been received and approved by the Founder Societies.
9. It is assumed that the report will not be printed until authorized by the Founder Societies.

Factors Leading up to Conclusions and Recommendations.—

- 1.—The assumption that the business done (jobs found) in the next two years should be equally successful may be doubted. If, as the result of prosperous conditions, fewer members seek employment, it may well be that the cost of the service will reach the budget figures without the assumed revenue from successful applicants. If this should be the case the Founder Societies will have to make up the difference between the annual contribution of \$16 000 and the budget figures of \$56 000.
- 2.—The value of the service rendered by each of the Founder Societies in the past must not be underrated and perhaps took care of a substantial part of the needs.
- 3.—On the basis of the A. I. M. E. placements the cost per placement would seem to be around \$67.

The fact that many applicants have been unemployed for six months to two years and that many of the applicants have had 10 or more years of experience, would raise the question whether any employment service would cover such cases satisfactorily.

- 6-7-8.—I am heartily in favor of continuing and developing employment activities but care must be exercised so that the largest results are secured with the least expenditure of money.
- 9.—Co-operative movements, while they may save time, effort, and expense, may on the other hand, eliminate the advantages of individual treatment and personal contact. If, for example, the Mining Engineers had 60 to 100 vacancies to fill in a year, it may be unwise to complicate the handling of so small a number of cases by classifying them as part of an enterprise involving 5 000 or 6 000 applications which include the whole field of engineering.
- 10.—The present contribution, as far as the Mining Engineers are concerned, amounts to over 2% of the annual budget, not 1%, and the budget, moreover, includes the expense of the monthly publication and its advertising matter. If the dues only were considered the employment appropriation would probably be nearer 3% of the budget.
- 13.—It may be doubted whether the Committee should include the expressions contained in this paragraph.

General Comments.—Although the discussions of the Committee indicated that the contributions of the Founder Societies in future would be in proportion to membership, this report does not so indicate.

As now proposed, there would be an annual budget of \$56 000, equivalent to \$14 000 for each Society, for which a contingent liability would have to be assumed.

The question to be answered by each Society is whether or not, for the amount of its contribution, it could serve its members directly, in a more personal and effective way, than through a large organization having an elaborate staff and records, the efficiency of which would depend upon constant supervision on the part of the Committee of twelve.

If the plan does not work out satisfactorily each of the Founder Societies would be morally bound to assume its proportionate share of the deficit and this might very easily run into formidable figures.

“Chicago, Illinois.

“April 10th, 1923

“MR. C. F. LOWETH, *President*, Am. Soc. C. E.,

“MR. E. P. MATHEWSON, *President*, A. I. M. E.,

“MR. JOHN LYLE HARRINGTON, *President*, A. S. M. E.,

“DR. F. B. JEWETT, *President*, A. I. E. E.

“DEAR SIRS:

“I have signed the report of the Joint Committee of the Four Founder Societies on Employment Service, to indicate my general concurrence with the general conclusions of the Committee as to the policy and line of action desirable in relation to the Employment Service, considering the needs of the service only.

“It is my opinion that the report should include a definite charge for placements.

“Provision should be made for membership in the governing board by co-operating societies.

“It is my understanding that co-operating societies should be required to appropriate equally with the four Founder Societies on the basis of membership.

“It is my opinion that the budget of expense for the general office is high and that the estimate for the Chicago Office is low.

“Yours very truly,

“EDGAR S. NETHERCUT.”

"New York, N. Y.
"April 4, 1923.

"MR. C. F. LOWETH, *President*, Am. Soc. C. E.,
"MR. E. P. MATHEWSON, *President*, A. I. M. & M. E.,
"MR. JOHN LYLE HARRINGTON, *President*, A. S. M. E.,
"DR. F. B. JEWETT, *President*, A. I. E. E.

"DEAR SIRs:

"In connection with the report of the Joint Committee of the four National Engineering Societies on Employment Service, I beg to submit the following statement. I have signed the report to indicate my concurrence with the general conclusions of the Committee as to the policy and line of action desirable in relation to the Employment Service, considering the needs of the service only.

"It is proper, however, to call your attention to the fact that the Council of the A. S. M. E., which I represent on this Committee, feels that they cannot continue, indefinitely, the support of the Employment Service out of their National treasury, and such support cannot be relied upon beyond the present fiscal year.

"Very truly yours,

"JOSEPH W. ROE."

EXHIBIT A Tabulation of Data by Years.

	1919.	1920.	1921.	1922.
Number men registered.....	5 377	2 171	1 905	1 479
Total men placed.....	1 256	1 479	1 365	2 604
No. pieces mail sent out.....	24 710	.....	23 561	35 569
No. applications forwarded.....	19 655	.....	31 799	41 118
No. positions received.....	2 495	.....	1 551	3 399
Salaries for operating.....	.....	\$10 460.53	\$11 261.51	\$12 348.45
Office rent.....	.....	.....	2 046.00	2 052.00
Office supplies.....	.....	.....	492.00	648.19
Printing.....	.....	.....	1 112.93	527.05
Bulletin.....	.....	1 971.13	334.85	430.50
Postage.....	.....	.....	460.00	750.00
Miscellaneous.....	.....	.....	.....	75.76
Telephone and telegraph.....	.....	.....	306.05	419.00
F. A. E. S. deficit.....	.....	.....	.....	926.51
Total expenses.....	\$12 998.19	\$12 431.66	\$16 013.44	\$18 167.46
Total cost, exclusive of F. A. E. S. deficit for 1922.....	.....	.....	.....	\$17 240.95

The F. A. E. S. operated the Service during the first six months of 1922 and paid (30 cents per member) \$8 751.84, of which the Am. Soc. C. E. paid \$1 500.00 to the F. A. E. S.

The four National Societies jointly operated the Service during the last six months of 1922 and paid during this period \$8 489.11, of which each Society paid one-fourth.

EXHIBIT B

Methods of Operating the Service During 1922

"Positions Available" are received by letters, telegrams, telephone, and by personal interviews with employers. These inquiries are given key numbers, written up in a concise manner and are then posted in "Position Books" maintained in the offices of the Employment Service and the reading rooms

of the Societies. These books are available for the inspection of members during regular office hours and, in bulletin form, are forwarded to the local branches of the Societies. "Positions Available" are also published in the several Society organs which reach 60 000 members. The names of employers are not disclosed in any of the foregoing.

When registering, members with special experience are requested to furnish copies of their records, including professional experience. After an examination of the records, a number of classification cards are made out, each one representing the member for a particular position for which he is qualified. These cards then become a part of the classification file. This file is divided into nearly 100 main branches of engineering and subdivisions comprising nearly 300 specialties.

Applicants may arrange to insert short advertisements in the publication of the Society in which membership is held.

Applications may be made by letter or by record. During 1922, letter applications ran from 30 to 150 per day, which taken at an average of, say, 60 per day, 300 days per year, totals 18 000 per year. These letters, directed to the key numbers, are re-addressed and forwarded to the employer who made the inquiry. The names of qualified members may be "selected" from the classification file, their records compared with the particular position and those of the apparently qualified men forwarded to the prospective employers. Each day the new positions received are checked against the classification file and the records of applicants are sent out. At least 6 000 records were forwarded by the Service in 1922. The foregoing plan operates without limitation because of geographical location of either employer or employee. After this point, negotiations are usually carried on to a considerable extent directly between employer and applicants.

Applicants for minor positions are usually required to call. From 30 to 75 applicants are interviewed daily. Approximately 1 200 cards per month are made out and given to applicants introducing them to prospective employers. When applicants are employed, the employer is supposed to note the same on the designated place on these cards and mail them back to the service.

Not all men who obtain positions *via* "application by letter" notify the service when a position has been obtained. Likewise, many employers fail to advise the Service when they have employed an applicant, thereby causing some confusion and error in the records and files of the Service.

Applications may be renewed each month, until applicant is placed, upon filling out and sending in a form furnished by the Employment Service.

EXHIBIT C

"CHICAGO PNEUMATIC TOOL COMPANY
"Chicago Pneumatic Building
6 East 44th St.
New York

"December 19, 1922
"Federated Society's
Employment Card

"FEDERATED ENGINEERING SOCIETY'S EMPLOYMENT BUREAU
"29 West 39th Street,
"New York City

"GENTLEMEN:

"We would like to call your attention to our advertisement in *Iron Trade Review* of December 14th, and if you have a copy at hand please note how we inserted in this advertisement your Society's employment card.

"The publishers of the *Iron Trade Review* assure us that they have approximately 32 000 readers each week, and we hope that this card will bring some results.

"We sent you a copy of our broadside, 70 000 of which is going out and if you have any other suggestions which we can work into our system which will be of benefit to the engineers generally, can assure you that we will appreciate your suggestions.

"Wishing everybody the compliments of the season, and that this time next year everybody may be satisfactorily employed, believe us to be,

"Very cordially yours,

"CHICAGO PNEUMATIC TOOL COMPANY

"(Signed) GEO. A. REES,

"Manager, Publicity Department.

"NOTE.—Copy of card duplicated in broadside and used in Ads referred to, enclosed herewith."

EXHIBIT D

Estimated Cost of Conducting the Service

1. Office of National Headquarters (New York City):

General Manager, salary.....	\$6 000
Traveling expense	4 000
Office expense (part time of steno.).....	800
Rent	500
Office furniture	350

Total \$11 650

2. New York Office:

Manager	\$5 000
Assistant Manager	3 600
Stenographers and clerks.....	10 000
Rent	2 040
Office expense	2 500

Total \$23 140

3. Chicago Office:

Manager (part time).....	\$3 000
Stenographer and clerk.....	3 500
Rent	700
Supplies	350
Furniture	500

Total \$8 050

4. San Francisco Office..... 6 000

5. Denver Office 5 000

Grand Total \$53 840

After extended discussion, during which several motions were offered and amendments suggested, final action resulted in the adoption of the following motion:

"That the sum of \$800 be appropriated for the Employment Service to continue the Service until August 1, 1923, and that the Secretary be instructed to notify officially the other Founder Societies that the American Society of Civil Engineers does not bind itself to continue such Service after August 1, 1923."

EXHIBIT E
Membership of Societies Using Service.

"R" = Registrations. "P" = Placements. Society.	1919.		1920.		1921.		1922.*		Totals* 1919-1922.		Accumulated surplus of registrations over placements.	Society membership. (See map.)	Percentage of Members registered with service. Does not consider non-members.	Percentage of members placed, assum- ing no dupli- cations and not consider- ing men not registered.
	R.	P.	R.	P.	R.	P.	R.	P.	R.	P.				
Am. Soc. C. E.....	483	126	197	80	235	81	224	248	1 109	535	574	9 459	11.7	5.65
A. I. M. E.....	257	63	185	52	201	44	140	85	783	244	539	8 255	9.5	2.95
A. S. M. E.....	876	291	493	305	473	276	445	631	2 387	1 493	794	14 483	15.8	10.3
A. I. E. E.....	323	121	296	142	259	140	285	256	1 168	659	509	11 690	9.	5.65
Total Soc.....	1 894	601	1 171	579	1 188	541	1 094	1 210	5 347	2 931	{ "B" 2 416	43 896	12.15	6.7
Non-members.....	2 816	538	1 127	447	707	326	385	247	5 035	1 558	{ 3 477	.....	.....	....
Men not registered....		185		574		497		967	"A" 2 223	.....	.....	.....	(?)	(?)
Grand total....	4 710	1 824	2 298	1 600	1 895	1 364	1 479	2 424	10 832	6 712	5 893 3 670	{ 43 896	(?)	(?)

* Does not include December, 1922, figures.

Note.—Every one who registers is given a particular registration number. If placed, he is transferred from the active to the inactive file. If required to use the service at a subsequent time, the previous file becomes active, the same number being retained and new papers may replace old ones in the file to bring same up to date. Many members who are not registered use the service by way of the interviewing office on "applications in person", and others by writing letters which are forwarded in answer to keyed advertisements.

EXHIBIT F
Society Membership—Registrations and Placements by Districts Based upon Membership Map Recently Published.
Employment Service "1922" Figures up to November 24, 1922.

	MEMBERSHIP ALL SOCIETIES.	A. S. C. E.		A. I. M. E.		A. S. M. E.		A. I. E. E.		REGISTRATIONS:				PLACEMENTS:				
										1921.		1922.		1921.		1922.		
		%.	Total.	%.	Total.	%.	Total.	%.	Total.	%.	Total.	%.	Total.	%.	Total.	%.	Total.	
North Eastern.....	12.5	5 259	10	946	7	578	16	2 325	12	1 410	11.6	214	11.3	185	6.1	80	5.5	128
Middle Atlantic.....	40.8	17 957	36	3 423	34	2 882	45	6 447	45	5 255	67.3	1 257	68.7	1 123	73.0	964	81.8	1 905*
Great Lakes.....	17.4	7 655	15	1 410	12	980	21	3 040	19	2 225	8.9	162	9.6	156	10.4	137	6.1	142
Southeast.....	7.4	3 276	9	850	6	495	6	876	9	1 055	3.4	62	3.7	61	3.5	46	3.1	70
Mid-West.....	12.6	5 645	17	1 600	29	2 390	7	1 070	5	585	7.1	131	4.3	71	6.5	85	2.8	66
Pacific Coast.....	9.3	4 104	13	1 230	12	980	5	725	10	1 169	1.7	31	2.4	38	0.5	6	0.7	15
Total.....	100	43 896	100	9 459	100	8 255	100	14 483	100	11 699	100	1 857	100	1 634	100	1 318	100	2 336

*The Volunteer Committee in New York unearthed 808 inquiries and 592 prospects.

EXHIBIT G

(XV) United States and Canada, Geographical Analysis, Inquiries, Placements, Registrations. (1922 Figures, January 1 to November 24, 1922).

State or country.	PLACEMENTS:		REGISTERED DURING:	
	1921.	1922.	1921.	1922.
Alabama.....	5	10	4	4
Arizona.....	4	7	14	2
Arkansas.....	1	2	2	0
California.....	6	6	24	30
Canada.....	7	11	22	12
Colorado.....	23	47	18	0
Connecticut.....	23	47	87	76
Delaware.....	4	6	28	2
District of Columbia.....	17	23	20	15
Florida.....	3	4	20	0
Georgia.....	8	10	9	5
Idaho.....	2	1	2	1
Illinois.....	38	31	42	41
Indiana.....	5	8	15	22
Iowa.....	13	11	8	11
Kansas.....	5	4	10	5
Kentucky.....	1	7	3	5
Louisiana.....	3	0	7	4
Maine.....	1	5	12	3
Maryland.....	8	8	36	4
Massachusetts.....	38	47	96	92
Michigan.....	16	18	32	24
Minnesota.....	1	2	13	10
Mississippi.....	0	1	1	3
Missouri.....	13	9	23	15
Montana.....	1	0	5	5
Nebraska.....	0	1	3	5
Nevada.....	0	0	0	0
New Hampshire.....	8	11	9	6
New Mexico.....	1	3	7	3
New Jersey.....	105	250	280	218
New York.....	759	1 473*	733	748
North Carolina.....	7	6	8	6
North Dakota.....	3	0	2	0
Oklahoma.....	5	4	6	2
Oregon.....	0	0	7	3
Ohio.....	51	58	46	54
Pennsylvania.....	71	145	170	136
Rhode Island.....	5	5	8	7
South Carolina.....	4	5	0	3
South Dakota.....	1	1	6	2
Tennessee.....	6	2	5	5
Texas.....	8	9	18	6
Utah.....	0	0	3	1
Vermont.....	0	4	2	1
Virginia.....	5	9	5	15
Washington.....	0	4	0	5
West Virginia.....	0	9	0	11
Wyoming.....	0	0	1	3
Wisconsin.....	13	7	27	15
Middle West.....	18	10	0	0
New England.....	5	5	0	0
Northwest.....	3	0	0	0
South.....	2	4	0	0
United States.....	0	16	0	0
Traveling.....	6	13	0	0
Total, United States.....	1 327	2 338	1 892	1 646

*Brooklyn, 94; New York City, 1 176; New York State, exclusive of New York City and Brooklyn, 203.

EXHIBIT H

1922 Entries Include January 1 to November 24.

State or country.	PLACEMENTS :		REGISTERED DURING :	
	1921.	1922.	1921.	1922.
Africa	2	1	0	0
Alaska	1	1	1	0
Australia	1	1	0	0
Bermuda	0	2	0	0
Central America	7	0	0	0
China	5	0	0	0
Chile	4	0	0	0
Cuba	7	5	1	3
Dutch West Indies	0	3	0	0
Europe	4	6	4	0
France	0	0	1	0
Foreign	4	6	0	0
India	0	1	0	0
Japan	2	10	0	0
Manila	2	3	0	2
Mexico	7	6	3	5
Nova Scotia	2	0	0	0
Panama	1	1	1	1
Peru	9	0	0	0
Philippines	3	0	0	0
Porto Rico	0	0	0	1
South and Central America	22	44	2	4
Tropics	3	0	0	0
Turkey	1	0	0	0
Total out of United States	87	90	13	16
Total, United States	1 327	2 388	1 892	1 646
Total, World	1 414	2 428	1 905	1 662

It was further moved, and carried, that the report of this Joint Committee on Employment Service be received and referred to the Secretary for conference with the Secretaries of the other Founder Societies and report at the next meeting of the Board in July.

The Society's representatives on this Joint Committee were discharged with thanks.

Recess was taken at 6:15 P. M., for dinner.

The Board reconvened at 8:35 P. M., with the same attendance as in the afternoon. Director Humphrey came in at 10:15 P. M.

PROPOSED PRIZE FOR PAPER RE SANITARY ENGINEERING WORK

The Executive Committee at its meeting of March 12, 1923, considered a letter from Chairman Kenneth Allen of the Executive Committee of the Sanitary Engineering Division, asking for approval to the raising of \$1 500 suggested by Samuel A. Greeley, M. Am. Soc. C. E., the proceeds from which would provide a medal to be given each year for the best paper on the general scientific aspects of sanitary engineering work as outlined in Mr. Eddy's paper read before the Division. The Executive Committee of the Board decided

that it did not have power to act finally in this matter, but would refer it to the Board with recommendation for favorable consideration.

On motion, the proposal was approved to raise the sum of \$1 500 by the Sanitary Engineering Division, with the understanding that the name of a living person is not to be connected with the medal.

TELLERS TO CANVASS BALLOTS FOR OFFICERS

On motion, the President was authorized to appoint the necessary Tellers to canvass the First, Second, and Final Ballots for nominees for Officers on June 1, 1923, August 15, 1923, and January 16, 1924, respectively.

1924 ANNUAL MEETING

As the Board, at its meeting of January 19, 1923, authorized the Secretary to secure an option for a place to hold the Reception and Dinner Dance at the time of the next Annual Meeting of the Society, with the understanding that no obligation would be incurred, he reported that the Committee on Technical Activities and Publications has had this matter under advisement as well as the appointment of a Local Committee of Arrangements for the 1924 Annual Meeting, and that tentative reservations have been made at both the Hotel Pennsylvania and the Astor.

After discussion, the following motion was carried:

"That the New York Section be authorized to appoint a Committee for Local Arrangements for the 1924 Annual Meeting, for the activities of the meeting other than the technical topics, and to report to the Committee on Technical Activities and Publications."

LETTER FROM ELEANOR HURLEY FRICK

The Board of Direction at its meeting of January 16, 1923, adopted resolutions of appreciation in connection with the completion by Miss Eleanor Hurley Frick of 25 years of service with the American Society of Civil Engineers and granted her an increase of salary and a leave of absence for three months. These resolutions were engrossed and illuminated and formally presented to Miss Frick. The following letter of acknowledgment from Miss Frick was presented for the record:

"APRIL 6, 1923

"TO THE BOARD OF DIRECTION

AMERICAN SOCIETY OF CIVIL ENGINEERS

"GENTLEMEN:—I received from Mr. Dunlap's hands the beautifully illuminated set of resolutions which you adopted in recognition of my services.

"It has been a great privilege to have been associated for twenty-five years with the work of this great Society, and to have been permitted to serve in some small degree its thousands of members.

"I am deeply sensible of the honor you have done me in adopting these resolutions. If at all I deserve these gracious words it is only because of the example set me by the leaders of the Society whose only thought is its welfare, and because I have been surrounded and upheld by a rarely noble staff whose

devotion to duty and loyalty to the American Society of Civil Engineers cannot be too highly commended.

"I shall ever treasure this token of your esteem—the greatest honor that has come to me.

"Sincerely,

"ELEANOR HURLEY FRICK."

APPOINTMENT OF THE SECRETARY AND TREASURER OF THE SOCIETY

On motion, carried unanimously, John H. Dunlap, M. Am. Soc. C. E., was appointed Secretary, and Otis E. Hovey, M. Am. Soc. C. E., Treasurer, of the Society.

SPECIAL COMMITTEE ON INDUSTRIAL EDUCATION DISCHARGED

A letter of April 4, 1923, was presented from Chairman Schneider of the Special Committee on Industrial Education, recommending that that Committee be discharged.

On motion, the Special Committee on Industrial Education was discharged as requested.

RESIGNATION OF A. P. DAVIS AS TRUSTEE OF UNITED ENGINEERING SOCIETY

A letter was presented, dated March 31, 1923, from A. P. Davis, Past-President, Am. Soc. C. E., stating he has submitted his resignation to the President of the Society as one of the Society's representatives on the Board of Trustees of the United Engineering Society, due to the fact that his official duties require his absence in the West a great deal of the time.

On motion, Mr. Davis' resignation was accepted with regret, and the President was authorized to fill the vacancy.

RESIGNATION OF JOHN MEIGS AS MEMBER OF FIRE PREVENTION COMMITTEE

A letter was presented, dated April 2, 1923, from John Meigs, M. Am. Soc. C. E., tendering his resignation as a member of the Special Committee on Fire Prevention.

On motion, Mr. Meigs' resignation was accepted.

ADOPTION OF AMENDMENT TO NEW YORK STATE CONSTITUTION RE WATER POWER DEVELOPMENT URGED BY POWER DIVISION

A letter was presented, dated April 7, 1923, from Secretary Maloney of the Power Division of the Society, urging the adoption by the present New York State Legislature of a concurrent resolution passed by the Legislature of 1922, proposing an amendment to Article 7, Section 7, of the State Constitution, the adoption of which it is stated is necessary if the progress of water power development is to be facilitated.

The following motion was carried:

"That the matter be referred to the New York Section and the Power Division be notified that it is the policy of the Society not to take any action in State affairs."

CONSTITUTIONS OF SYRACUSE AND MILWAUKEE SECTIONS APPROVED

The proposed Constitutions of the Syracuse and Milwaukee Sections of the Society were presented, and on motion, were approved with the proviso that all Articles which do not conform to the rulings of the Board would be re-drafted in accordance therewith.

MILEAGE APPROPRIATED FOR STANDING COMMITTEES

On motion, the sum of \$1 000 was authorized to be placed in the Budget for mileage for Standing Committees of the Board of Direction.

FORM OF PUBLISHING BOARD MINUTES IN *Proceedings*

The question was discussed as to whether the present practice of publishing the minutes of meetings of the Board of Direction in *Proceedings* almost as forwarded to the Directors (with the exception of confidential matters which are deleted), should be continued, or whether such minutes should be abstracted for publication and made impersonal.

After discussion, the following motion was adopted:

"That it is the sense of the Board of Direction that the minutes of the Board as published in *Proceedings* should be more abbreviated and that the whole matter be referred to the Committee on Technical Activities and Publications with power."

COMMITTEE ON STUDENT CHAPTERS

The Committee on Student Chapters submitted the following report:

"Your Committee begs to make the following report on the applications of Student Chapters. It recommends that the applications of Chapters at University of Michigan, University of Tennessee, College of City of New York, and University of North Dakota be approved and that the applications of the Mississippi A. and M., Clarkson College of Technology, Marquette University, and Rice Institute of Civil Engineers be deferred to a later date until further information may be obtained."

On motion, the foregoing report was accepted and adopted.

The meeting adjourned at 11:25 P. M., to meet at 9:30 A. M., April 17, 1923.

April 17, 1923.—The Board met at 9:35 A. M.; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present, also, Messrs. Anderson, Brown, Chester, Condron, Darrow, Davis, Davison (came in at 9:50 A. M.), Dyer, Fenkell, Freeman (came in at 9:50 A. M.), Grunsky, Hogan (came in at 10:00 A. M.), Holland, Holmes, Humphrey, Mason, Ridgway, Talbot, Whitman, Winsor, and Yates.

COMMITTEE ON LOCAL SECTIONS

The Committee on Local Sections presented the following report:

"NEW ORLEANS, LA.,

"April 18, 1923.

"TO THE BOARD OF DIRECTORS,

"AMERICAN SOCIETY OF CIVIL ENGINEERS

"GENTLEMEN:—The Committee on Local Sections has under consideration the following matters concerning Local Sections:

- 1.—Scope of their activities;
- 2.—Assignment of members in a given territory to membership in a Local Section;
- 3.—Allotment of funds of the Society;
- 4.—Supervision by the Society of the expenditure of these funds;
- 5.—Limitations as to purposes for which funds may be issued;
- 6.—Bulletins issued by Local Sections for publication of papers or other matters coming before the Sections;
- 7.—Conferences, held annually or more often, of representatives of Local Sections, with or without mileage allowance;
- 8.—Secretary's plan for Comprehensive Sub-committees of the Committee on Technical Activities and Publications;
- 9.—Relation of Sections to Divisions and other Society activities, for example, in connection with membership;
- 10.—Issuance of questionnaire to the Local Sections.

"The Committee is favorably considering the assignment of members to Sections as indicated in Item 2.

"It does not feel that it would be desirable to increase the allotment to Local Sections at this meeting.

"It feels that there should be some supervision of the expenditure of funds by Local Sections and of the purposes for which such funds may be used.

"The Committee favors informal conferences of representatives to Local Sections at the Annual Meeting and Annual Convention, as well as at the Spring and Fall Meetings.

"The Committee is planning to present a report on all of the above items at the next meeting of the Board of Directors.

"Respectfully submitted,

"GEORGE G. ANDERSON,

"GEORGE H. FENKELL,

"RICHARD L. HUMPHREY.

"Chairman."

The legitimate activities of Local Sections were discussed especially in connection with endorsing candidates for offices in the Society and using in that connection, or in connection with matters not strictly relating to Local Sections or Society business, the allotment made by the Society.

After discussion, the report of the Committee was received and a motion was adopted as follows:

"It is the sense of this meeting of the Board that the expenditures of the Society's allotment to Local Sections for propaganda in advocating the candidacy of members for offices in the Society is not desirable."

REGISTRATION OF ENGINEERS

The Chairman of the Committee on Registration of Engineers reported progress, and asked that the matter be deferred until the next meeting of the Board, which request was granted.

COMMITTEE ON DISTRICTS AND ZONES

The President announced that, in accordance with authorization of the Executive Committee at its meeting on March 31, 1923, he had appointed Messrs. Walter L. Huber Chairman, Theodore L. Condron, and Glenn D. Holmes, as a Committee of the Board of Direction on Districts and Zones, to report to the Board in January, 1924.

NEW CONSTITUTION OF ST. LOUIS SECTION

The proposed new Constitution of the St. Louis Section was presented to the Board at its meeting of January 19, 1923, and was approved with the understanding that certain articles would be redrafted to conform to the standard.

For the record, it was reported that under date of April 12, 1923, the Secretary of the St. Louis Section had forwarded the new Constitution properly revised, and it is now in correct form.

DETROIT SECTION INVITES SOCIETY TO HOLD A CONVENTION IN THAT CITY

Director Fenkell presented the following resolutions adopted by the Detroit Section on April 6, 1923, together with letters from the Mayor and Detroit Board of Commerce, all inviting the Society to hold a convention in that city in the near future:

"Whereas, the last Convention of the American Society of Civil Engineers held in Detroit was in July, 1898, and

"Whereas, the extraordinary growth of Detroit since that time, in population, manufactures, and commerce has been accompanied by the construction of great and comprehensive works of engineering interest, and

"Whereas, the strategic location of Detroit, near the center of activities on the Great Lakes and connected navigable waters, will result in further growth and require the solution of great engineering problems, therefore be it

"Resolved, that the Detroit Section, American Society of Civil Engineers petitions your honorable body to designate Detroit as the place for holding a convention of the American Society of Civil Engineers, in the near future, and be it

"Resolved, that the topic for discussion at said convention, be 'Problems Relating to Navigation and Commerce on the Great Lakes and Connected Waterways', and be it further

"Resolved, that Mr. George H. Fenkell, Director from District No. 7, be authorized to present this petition to the Board of Direction at the meeting of the Board to be held at New Orleans, April 16, 1923."

On motion, this invitation was referred to the Committee on Technical Activities and Publications to report at the next Board Meeting.

ENGINEERING SOCIETIES LIBRARY

The following resolution was adopted:

"Whereas, the Engineering Societies Library is made up of the libraries of the four founder societies, each of which owns its own library, and the library of the United Engineering Society, and contains 150 000 books and has an estimated value of \$325 000, and

"Whereas, the general operating expenses for the past year amounted to \$29 813.98 and re-cataloguing during the same period cost \$14 248.28; and books, binding, and periodicals cost \$7 233.83, and

"Whereas, there are 8 840 members of this Society residing more than fifty miles from the library in New York, and

"Whereas, the vast majority of the members of this Society make no use of this library,

"Therefore Be It Resolved, that the President be directed to appoint a special committee of three to determine ways and means whereby this library may become of greater use to its members, and report the result of its findings with recommendations to the Board of Direction at the Fall meeting."

SUGGESTION THAT BOARD BE DIVIDED INTO FOUR GROUPS FOR
CONSIDERATION OF APPLICATIONS

The following resolutions were referred to the Committee on Mechanical Rating, for report back to the Board at some future meeting:

"Whereas, at the quarterly meetings much of the time of the Board of Direction is taken up in discussion and consideration of applications for admission to the Society, and

"Whereas, it would be of advantage to the Society were it possible for the President to spend less time on routine work, and

"Whereas, it is desirable that the members of the Board of Direction have more time at the quarterly meetings to discuss informally matters of importance;

"Therefore Be It Resolved, that the Board of Direction be divided into four groups and each group placed in charge of a Vice-President, and that the applications for admission now considered by the Board of Direction at quarterly meetings be divided among these groups for consideration and recommendation, and that the formation of the groups and rules for their operation be determined from time to time by the Executive Committee; and

"Be It Further Resolved, that at the quarterly meetings of the Board of Direction, that time saved in considering applications for membership by groups be allotted to a meeting of the Board of Direction for informal discussion of such matters as the President may select."

INVITATION TO MEET IN SALT LAKE CITY IN 1924

Invitations from the Utah Section of the Society and the Engineering Council of Utah to hold a meeting in 1924 in Salt Lake City, Utah, devoted to Land Reclamation, were presented.

On motion, these invitations were referred to the Committee on Technical Activities and Publications.

REARRANGEMENT OF THE FIFTEENTH FLOOR

The Committee of the Board on Rearrangement of the Fifteenth Floor, which has been retained in an advisory capacity to the Executive Committee in this matter, made a report of progress explaining the need for a further expenditure of \$2 411 for additional items.

On motion, an additional expenditure of \$2 411 was authorized to be made under the direction of the Executive Committee. This is in addition to the expenditure of \$11 000 authorized at the Board meeting of January 16, 1923.

EXPRESSIONS OF THANKS FOR COURTESIES EXTENDED EN ROUTE TO NEW ORLEANS

The following motion was carried unanimously:

"That the Board of Direction expresses to Mr. Dyer its hearty appreciation of the hospitality and many courtesies extended to its members, ladies, and friends, on their way to New Orleans."

On motion, the Secretary was instructed to write letters of thanks to all those who had entertained the members of the Board of Direction and their party en route to New Orleans.

Recess was taken at 12:30 P. M., for luncheon.

The Board reconvened at 5:30 P. M., with the same attendance as in the morning.

Recess was taken at 5:35 P. M., for dinner, to reconvene as a Membership Committee.

The Membership Committee reconvened at 9:45 P. M.

The Board reconvened at 10:30 P. M., with the same attendance as in the afternoon.

The report of the Membership Committee was presented and, on motion, the recommendations of the report were adopted as the action of the Board.

AUTHORIZATION FOR APPOINTMENT OF SPECIAL COMMITTEE ON
STEEL COLUMN RESEARCH

Past-President Talbot spoke in regard to the appointment of the Special Committee, already authorized, on Steel Column Research, and, on his motion, the President was authorized to use his judgment as to when this Committee should be appointed.

RESOLUTIONS OF THANKS

On motion, the following was adopted:

"Resolved, That the Board of Direction of the American Society of Civil Engineers herewith expresses its appreciation and thanks to the Louisiana Engineering Society for its hospitality and the opportunity extended to meet its members at luncheon on Monday, April 16th."

On motion, the following was adopted:

"Resolved, The Board of Direction of the American Society of Civil Engineers extends its thanks to the Committee on Local Arrangements, to the Louisiana Section of the Society and to the Ladies Committee for the very complete and efficient arrangements which they have made for the comfort and entertainment of the Directors and the members of their families during their stay in New Orleans. The gracious hospitality which has been extended to us is greatly appreciated and will be long remembered."

On motion, the Secretary was instructed to write the necessary individual letters of thanks.

The Board adjourned at 11:30 P. M., to meet at 7 P. M., May 28, 1923, at Society Headquarters for the consideration of applications for membership about which there is no question, and to meet at the Drake Hotel, Chicago, Ill., at 10:30 A. M., July 9, 1923, this being the regular Quarterly Meeting of the Board.

May 28, 1923.—The Board convened in regular meeting at 7:15 P. M., at the Headquarters of the Society; President Charles F. Loweth in the chair; John H. Dunlap, Secretary; and present also Messrs. Chester, Holland, Holmes, Ridgway, Webster, and Whitman.

Ballots for membership were canvassed, resulting in the election of thirty-five Members, eighty-seven Associate Members, two Affiliates and fifty-four Juniors, and the transfer of fourteen Juniors to the grade of Associate Member.

Seven Associate Members were transferred to the grade of Member.
A report from the Membership Committee was received and acted on.
Adjourned.

OF THE TECHNICAL DIVISIONS

Sanitary Engineering Division

(Abstract)

May 12, 1923.—A meeting of the Executive Committee of the Sanitary Engineering Division was held at the Engineering Societies Building, New York, N. Y., at which the following members were present: Messrs. Kenneth Allen, *Chairman*, George T. Hammond, X. H. Goodnough, J. Frederick Jackson, and H. P. Eddy.

The proposed By-Laws were discussed and certain changes made which will be reported to the members of the Division.

Chairman Allen read a letter from Mr. Glenn D. Holmes, Chairman of the Committee on the Friction of Sludge, as well as a prepared statement of the Division's finances, and asked whether the Division shall make allowance for mileage for attendance at the meetings of the Executive Committee, and of the Committee on the Friction of Sludge.

After discussion of the question, on motion, duly seconded, the following resolution was adopted:

"That an appropriation be made as follows: For the Committee on Friction in Pipes Carrying Sludge, 3 cents a mile for approximately 2 000 miles; that mileage at 2 cents a mile be allowed members of the Executive Committee for the Chicago meeting; and that mileage at 3 cents a mile be allowed for attendance at three Executive Committee meetings in New York."

In the matter of the program for the Chicago meeting, Chairman Allen presented correspondence in relation to such meeting, which was followed by brief discussion as to the advisability of holding a formal meeting at Society Headquarters.

A letter from Mr. H. M. Beaumont, of the New Jersey Committee on Sewage Experiment Stations, endorsed by Mr. S. Fisher Miller, President of the New Jersey Sewage Works Association, asking the Executive Committee to appoint a member of the Division to sit with this Joint Committee, was read by Chairman Allen. After a brief discussion, it was moved, seconded, and carried that the Executive Committee appoint the Chairman of the Sanitary Engineering Division to sit with members of the Committee on Sewage Experiment Stations, referred to in Mr. Beaumont's letter.

OF THE SPECIAL COMMITTEES

Special Committee on Flood-Protection Data

(Abstract)

April 5, 1923.—The meeting was called to order at 10 A. M., at the Headquarters of the Society. Present, N. C. Grover (*Chairman*), C. B. Burdick,

C. W. Sherman, representing H. P. Eddy, G. H. Matthes, Arthur O. Ridgway, and W. P. Creager (*Secretary*).

Mr. Sherman presented a tentative form, prepared by Mr. Eddy, for use in compiling flood data, and also read a communication from Mr. Eddy explaining this form.

On motion, duly seconded, the general features of the tentative form were adopted by the Committee, with an expression of appreciation of Mr. Eddy's work, and Mr. Sherman was requested to ask Mr. Eddy to divide the form into several pages in order to make it more suitable for extended records.

The Committee decided to tabulate the variations of flow of characteristic floods instead of plotting hydrographs, and Mr. Matthes was asked to prepare a form for such tabulation and forward it to Mr. Eddy with the request that he include it in the series of forms for flood-flow compilations.

Mr. Grover stated that he would have reproductions made of Mr. Eddy's revised forms and write a code of instructions to be used with them. This code will be distributed by correspondence to members of the Committee for discussion.

On motion, duly seconded, it was decided that the first work of the Committee should consist in the compilation of flood flows and factors affecting them.

Ways and means of obtaining flood flow data were discussed at length, and it was agreed that such data should cover: (a) Rivers which are of importance because of past or possible future damage by floods; (b) a well graded choice of large and small streams; (c) representative streams throughout the United States; and (d) streams of longest periods of records.

In order to avoid duplication of data, Mr. Grover was requested to ask U. S. District Engineers for their recommendations as to what rivers in their districts would furnish the best data.

A list of rivers to be tabulated will be prepared by the Committee and sent to every State Engineer for comment, after which a final list will be sent to the District Engineers to be tabulated according to the data in their offices. Copies of these tabulations for each district will be sent for correction to the members of the Committee and other representative engineers in the districts.

The meeting adjourned at 5:30 P. M.

Special Committee on Impact in Highway Bridges

(Abstract)

April 7, 1923.—The meeting was called to order at 9:30 A. M., at the rooms of the Western Society of Engineers, Chicago, Ill. Present A. H. Fuller (*Chairman*), A. R. Eitzen, E. F. Kelley, F. E. Turneure, and Clyde T. Morris (*Secretary*).*

The minutes of the meeting of December 13, 1922, were read and approved as corrected.

The report of Secretary Morris on the questionnaire was presented.

* Professor Morris resigned as a member of this Committee on May 14, 1923.

On motion, duly seconded, it was decided to make a careful comparison of the various instruments available, especially with reference to the photographic instrument recently developed by the U. S. Bureau of Public Roads. It was also decided, on motion, duly seconded, that if, in the judgment of Chairman Fuller, the purchase of an instrument similar to that of the U. S. Bureau of Public Roads is advantageous to the work of the Committee, that such purchase be recommended.

A discussion of the province of the Committee and its relation to the work of the U. S. Bureau of Public Roads was held until the adjournment at 12:20 P. M.

The Committee reconvened at 2:20 P. M.

On motion, duly seconded, it was agreed that Professor Turneaure, as a member of the Committee and of the Iron and Steel Committee of the American Railway Engineering Association, should endeavor to arrange a joint meeting with the Sub-Committee on Highway Bridges of the A. R. E. A. Committee on Iron and Steel Structures.

On motion, duly seconded, Secretary Morris was authorized to visit the Michigan State Highway Department and the University of Michigan in order to ascertain their equipment and programs, and to correlate their work with the work of the Committee.

On motion, duly seconded, Secretary Morris was instructed to reply to those who had responded to the questionnaire.

The meeting was adjourned at 4:30 P. M.

Special Committee on Specification for Bridge Design and Construction

(Abstract)

May 18 and 19, 1923.—A meeting of the Special Committee on Specification for Bridge Design and Construction was held at the Hotel La Salle, Chicago, Ill. Present H. B. Seaman, (*Chairman*), J. H. Ames, V. C. Cochran, O. E. Hovey, C. W. Hudson, E. F. Kelley, S. B. Slack, and I. F. Stern.

On motion, duly seconded, various changes were authorized to be made in the Specifications for the Design and Construction of Steel Railway Bridge Superstructure.

On motion, duly seconded, changes were also authorized to be made in the Tentative Specifications for Steel Highway Bridge Superstructure.

ADDRESS OF WELCOME AT OPENING SESSION OF THE SPRING
MEETING OF THE SOCIETY, NEW ORLEANS, LA.,

APRIL 17, 1923.

BY DONALD DERICKSON, M. AM. SOC. C. E., PRESIDENT OF THE LOUISIANA SECTION.

Mr. President, Members of the American Society of Civil Engineers, Ladies and Gentlemen: In taking advantage of the pleasant duty and privilege which has been accorded me of calling this meeting to order, I wish to say that the Louisiana Section feels both pleased and honored in that you have come to New Orleans for the Spring Meeting. Situated as we are, only a few of us can attend the meetings of the Society, and our knowledge of its activities is gained mostly from the *Proceedings*, and these lack for us that inspiration which comes only from personal contact and association, so we welcome with pleasure this opportunity of meeting again with our fellow members of the Society.

We still retain pleasant memories of the last meeting held here, but as ten years have elapsed since then, it is desirable that we renew our impressions, and I am confident that, as a result of this meeting, membership in the Society will have for us a renewed value, and a greater personal meaning.

The technical program, as outlined, is timely, and of the greatest possible interest, as it embraces the river and harbor problems of the Lower Mississippi. New Orleans, we are fond of saying, is the second port of the United States. We are proud of our port, and of its development and management. Recently, the State of Louisiana, at an expenditure of about \$20 000 000, has opened to traffic a port facility in the form of an inner harbor, or navigation canal, extending from the Mississippi River to Lake Pontchartrain; the industrial development of this canal, which remains yet to be accomplished, is of great importance to the future expansion of this port. Then, too, there exists in this section of the country some difference of opinion in regard to the proper method of regulating the flood waters of the Mississippi. This difference of opinion is not entirely confined to the layman, for, let the subject be introduced at a meeting of the Louisiana Engineering Society (which is a progressive organization of about three hundred engineers), and an extended discussion is likely to be precipitated, as this problem is far-reaching in its significance, and is of vital interest to all who live behind levees and depend on their stability for protection during high water.

Indeed, this meeting is most opportune, and I express the unanimous sentiment of the Louisiana Section when I say that we are glad you are here, and we hope that you will enjoy your stay with us.

ADDRESS OF WELCOME AT THE SPRING MEETING OF THE
SOCIETY, NEW ORLEANS, LA., APRIL 17, 1923.

BY GOVERNOR JOHN M. PARKER OF LOUISIANA

Mr. President, Ladies, and Gentlemen! It is an honor to be able to address, and welcome to this State, a body of men, who, to my mind, represent the very highest ideals of Americans, and who are more responsible for the civilization of this country and of the world than any other organization.

You have met to deliberate on problems of State and National welfare. You are the men who have turned a wilderness into the marvel of the world; and, in paying tribute, permit me to call your attention to the American engineers whose energy and earnestness and splendid high standards have accomplished great and lasting results.

You have a constructive program before you, and there is an additional honor in greeting you to-day, when I see in this audience a representative of the great Chinese nation, who has come to sit with you, and to carry back to his people the merits of the accomplishments of the New World.

It is not only that I delight to welcome you, but I hope, from the bottom of my heart, that your deliberations will solve, for the welfare of the State and the Nation, some of the great problems that confront the lower cities of the valley.

Living on the river, having traveled it for many, many years, and having been very active in all kinds of river work since 1882, naturally, those problems are very near to me and to all who have seen our levees grow from almost nothing to the great mounds of earth that we have to-day, and there is not a person, if he asks himself the direct question, who does not realize that the Mississippi River and its tributaries present one of the greatest of all problems, the untangling of which will make the entire Mississippi Valley the happiest and most prosperous section in the world.

The problem to-day is its floods, and how to handle and control them. No man can open a drain and turn water on his neighbor without being responsible for damage to the property and the crops.

In olden times, there was no surface drainage and tile drainage; the water on which we had to depend for the fertility which is so essential in planting, was held by the streams and lakes. With the modern improvements all over the North and the West, however, we have had the problems of caring for the waters of twenty-nine of our sister States, with the result that we have now an almost irresistible flood, in many instances bringing ruin and disaster to our people. Many of you may never have seen a flood, and I hope you never will. I have seen every overflow since 1882, and, in 1912, on my own property there was a break more than 8 000 ft. wide, and the quantity of earth moved was almost equal to two-thirds of the total excavation from the Panama Canal. These overflows carry off the sandy soil, digging great holes and forming whirlpools, and, in one instance, it carried a tree, more than 100 ft. high, and sank it, almost out of sight, a quarter of a mile back of the levee. If you

could see the destruction of property, live stock, and the ruin and damage to homes, you would understand why, every time the water from the Ohio, the Missouri, and other tributaries begins to rise, we begin to feel nervous and anxious, and watch those long stretches of levees, of which Louisiana has more than any other State in the Union. In addition, we have to care for part of Arkansas, in order to protect our people on the Ouachita River and in that vast territory between the Mississippi River and the high lands of the western part of Louisiana.

The Mississippi is the greatest river in the world, and certainly should afford the cheapest means of transportation known to mankind. Barges of cargo can be brought to New Orleans from the Central and Western States, and shipped to all parts of the world. New Orleans is closer to the Panama Canal than any other large city. You can ship on the Atlantic or the Pacific, and distribute from here cheaper and easier than from anywhere else.

These barges are now bringing trainloads at a time. Recently, I saw one pass down the river carrying 6 700 tons of iron from Pittsburgh, Pa. Railroad transportation, during the World War, fell down and almost failed to survive. To-day, the railroads have almost as much freight as they can handle. You no longer find hostility by the railway lines to water transportation, because they realize that it adds very much to the volume of their business. My hope is to witness a great increase in tonnage and also to see the Ohio made navigable under the system of locks being put in by Gen. Beach, so that the producers and manufacturers of the West may sell their products to the South and to Central America. We should do everything in our power to bring about a better feeling between rail and water transportation lines. The latter form the natural highways, that can never be appropriated to any use except that of the general public. Not only our population, but our development, is increasing to an unusual degree. In years to come, I honestly believe that the Mississippi Valley will be able, not only to feed and clothe the entire population of the United States, but have a very handsome surplus to send to other parts of the world when we learn to be better farmers, and eliminate, as I am confident we shall, all danger from insect pests, either to crops or cattle.

Our spillway question is also vitally important, and we look forward with keen pleasure to the result of your deliberations in regard to it.

Your organization does more to upbuild civilization than any other. You are men of high ideals. You are men whose constructive work enables people to live better and more comfortably, and to transport and handle all the commodities more satisfactorily and better than formerly.

We know that America to-day represents the highest ideals of citizenship in all the world. America, the only country controlled by its own people for 150 years, has nowhere recognized any autocrat, any official leaders by blood, but the people select their officials for ability and merit only. America is the one nation that has been more free from internal dangers of every kind than any other in the world.

We see, and cannot help seeing, the cloud that arises from time to time, where some of those organizations seek to over-rule the laws, and believe them-

selves to be superior to justice and the Courts. I have appealed to every organization that I ever had the honor of addressing to do all that lies in its power to assist in supporting legally sworn officials, and the judiciary, because the moment that we fail to observe the laws, we are slipping back to barbarism. The remedy is absolutely in the hands of the people themselves. Were I asked to make any criticism in regard to general conditions, it would be that our business men, and our professional men do not take sufficient interest in public affairs. They forget that the prosperity of the nation depends on seeing that proper men fill the various offices to which they are elected. It is nothing short of a crime to send absolutely incompetent and unfit men to make the laws that not only govern us, but the business people and all our public work and lives. I appeal to you, as one of the great representative bodies of this country, to uphold the importance of good citizenship, and the observation of our laws, because they form the whole platform of America.

In Louisiana, we are striving earnestly to establish a high standard of enforcing the laws, and enforcing them fearlessly.

We want you to feel that you are welcome. It will be a pleasure to do anything in our power for your comfort, for your convenience, and for your information.

REPLY TO ADDRESS OF WELCOME AT THE SPRING MEETING OF THE SOCIETY, NEW ORLEANS, LA., APRIL 17, 1923

BY CHARLES F. LOWETH, PRESIDENT, AM. SOC. C. E.

Your Excellency, Mr. President, and members of the American Society of Civil Engineers: Had any doubt remained of the wisdom of the choice of the Board of Direction in its decision to hold this meeting at this time and place, certainly no doubt now remains after listening to the gracious and generous welcome which the Governor of this old and great State has so delightfully extended. I assure your Excellency and, as well, the officers and members of the Local Section of the Society, that the membership has long looked forward to its visit to this old State and to this charming city with all their interesting and inspiring historical background and their visions, which so far seem to us fully justified, of a still greater future.

The technical papers which are to be presented during these meetings pertain to various problems in connection with the Lower Mississippi River, principally its flood control and its service to mankind as a carrier of commerce. We are very glad that these problems have been presented for our consideration as they are well worth while and are of outstanding interest and importance, not only to this particular part of the country, but also to the entire Nation, because if one section prospers all prosper, and if one section suffers, all suffer. Members of the Society are very much interested in these problems, and, if our discussion of them will, in any way, be of value to our fellow citizens in this vicinity who are face to face with them in a very practical way, we shall feel that we have rendered a real service. As engineers, we feel it a part of our civic duty as well as our privilege to

give what assistance we can in the solution of problems where human welfare is at stake, and especially where that is so largely true, as in the question of the proper control and profitable use of this great river.

We realize, not only the importance of this problem, but its magnitude and difficulties. It is important because it so vitally affects large sections of rich and fertile country, upon which has been spent the accumulation of much hard labor through many years, and which is populated with many thousand inhabitants whose prosperity, even more, whose lives, are dependent on the proper regulation and use of this great river. The river has built up a most fertile land and provides a channel for an almost unlimited commerce. Properly controlled, it will be an increasing blessing in these and other ways; left to its own devices it will ever undo the good work of the past and terrorize all who live within its range. It may be a useful servant or a wicked master. The problems are very difficult, of large magnitude, and great complexity. They are engineering problems, of a kind calling for highly specialized engineering experience and ability.

As a railroad man, I realize some of the many phases of this great river, but when so many able and experienced men, highly trained by a lifetime of study of river hydraulics, can only with difficulty agree on many phases of the problems presented by this mighty river, we may the more readily conclude that the average engineer, much more the layman, may very properly give place to those who, by special training, observation, and study, are the most competent to work out satisfactory solutions. A very slight acquaintance with the river convinces one of the great magnitude of the problems it presents. They are largely outside the realm of laboratory investigation and, for the most part, have had little study here or in the comparatively few other places where conditions such as are presented by this river have any similarity. It is unfortunately a common occurrence for many people to express opinions freely about things of which they have no adequate knowledge, and engineers perhaps fall into such errors as often as the average man. We should, however, be especially on our guard that we do not sin in this way in speaking of engineering matters. When an engineer makes a statement pertaining to an engineering problem, he is expected to speak as and with the authority of an engineer, and he should carefully avoid extravagant and unfounded statements. Therefore, some of the members will speak on the questions before us for consideration with a large measure of authority, whereas others of perhaps equal authority in other branches of engineering practice will only listen, but will, I trust, be instructed as well as interested.

The benefits that may come from the papers to be read and discussed at these meetings will not be confined to this time and place as they will be published and will doubtless provoke further written discussions from competent engineers engaged in solving similar problems elsewhere.

We are very glad to have with us to-day a large number of young men who are members of Student Chapters of the Society. We welcome them, and hope that these meetings may prove to be, not only a benefit, but an inspiration.

Your Excellency, and to you, Mr. President of the Local Section, in behalf of the Society, I thank you for your hearty welcome and kind hospitality.

Excursions and Entertainments New Orleans, La., Meeting

The program for the Spring Meeting as a whole was prepared under the direction of the Committee on Technical Activities and Publications of the Society, Messrs. Richard L. Humphrey, *Chairman*, John N. Chester, C. E. Grunsky, John P. Hogan, and J. J. Yates.

The arrangements for the meeting were made by a Local Committee consisting of Messrs. W. B. Gregory, *General Chairman*, Donald Derickson, E. H. Coleman, Samuel M. Young, C. N. Bott, and F. A. Muth, *Secretary*. The following Committees also assisted in carrying out plans for various entertainments, etc.:

Committee on General Arrangements.—Ole K. Olsen, *Chairman*, J. F. Coleman, Ernest Lee Jahncke, J. L. Dickey, A. T. Dusenbury, F. A. Muth, W. H. Williams, A. M. Shaw, C. H. Stem, and E. S. Lanphier.

Committee on Reception.—J. F. Coleman, *Chairman*, Donald Derickson, Sidney F. Lewis, Ole K. Olsen, J. W. Billingsley, C. W. J. Neville, F. P. Hamilton, Samuel M. Young, Col. E. J. Dent, Col. George McDerby, Frank M. Kerr, and A. F. Theard.

Committee on Hotels and Accommodations.—W. H. Williams, *Chairman*, J. P. Ewin, *Vice-Chairman*, B. H. Grehan, C. N. Bott, and G. W. Hillman.

Committee on Publicity.—C. H. Stem, *Chairman*, A. M. Shaw, Charles M. Kerr, W. T. Hogg, J. H. Bernhard, and Col. E. S. Bres.

Committee on Automobiles and Transportation.—A. T. Dusenbury, *Chairman*, E. H. Coleman, J. W. Billingsley, E. F. Deléry, and C. G. Cappel.

Committee on Reception and Entertainment of Ladies.—Mrs. Ole K. Olsen, *Chairman*, Mrs. J. F. Coleman, Mrs. A. M. Fromherz, Mrs. W. B. Gregory, Mrs. Donald Derickson, Mrs. E. S. Lanphier, Mrs. F. A. Muth, Mrs. A. M. Shaw, Mrs. J. S. Barelli, Mrs. A. T. Dusenbury, Mrs. E. L. Jahncke, and Mrs. M. H. Stem.

Luncheon for Board of Direction.—On Monday, April 16, at 12:30 p. m., in the Gold Room of the Grunewald Hotel, the members of the Board of Direction of the Society were tendered a luncheon by the Louisiana Engineering Society, which was attended by 65 members and guests. Mr. J. S. Barelli, President of the Louisiana Engineering Society, presided, and brief remarks were made by various members of the Local Committee and guests.

Dinner for Board of Direction.—On Tuesday, April 17, at 6:30 p. m., the Louisiana Section of the Society gave a dinner to the members of the Board of Direction and the visiting ladies at Galatoires Restaurant, at which there were 74 members and guests in attendance. Professor Donald Derickson, President of the Louisiana Section, acted as Toastmaster and called for brief talks from various members and guests.

Entertainment for the Ladies.—While the Technical Meetings were in session, the visiting ladies were accompanied by the members of the Ladies Committee, on shopping tours, visiting special places of interest as requested, and to luncheon.

A card party was arranged for Wednesday evening, April 18, at the Grunewald Hotel, and entertainment with refreshments was provided.

On Thursday morning, April 19, a number of the ladies were conducted by automobile to Newcomb College where they were given an opportunity to visit the Art Department where articles of jewelry, pottery, etc., were manufactured by students. This trip was concluded with a luncheon served in the tea garden at the residence of Mrs. Ole K. Olsen.

Local Excursion through the Vieux Carre.—On Wednesday afternoon, April 18, the General Arrangements Committee, together with the Ladies Committee, had planned a local excursion through the Vieux Carre, or old section of the City of New Orleans. The parties visited the various points of historic and romantic interest, having been conducted by trained guides.

The members of the Louisiana Engineering Society and local members of the National Engineering Societies in New Orleans assisted in entertaining the guests on this trip. On the conclusion of the excursion all the members and guests were entertained by the Ladies Committee in the courtyard of the Arts and Crafts Club on Royal Street, where they enjoyed negro melodies sung by the students of Newcomb College. Other features of entertainment were provided, and a negro mammy dressed in the typical costume handed the visitors Creole pralines. Refreshments were also served.

Local Excursion by Automobile.—On Thursday afternoon, April 19, the Committee on General Arrangements, together with the Committee on Automobiles and Transportation, had planned a trip by automobile through the City of New Orleans, cars for which were provided by members of the Louisiana Engineering Society and local members of the National Engineering Societies. The excursion started from the Grunewald Hotel and the route led down past Jackson Square to Esplanade Avenue, thence out Claiborne Avenue to St. Bernard Avenue and into Broad Street. The Drainage Pumping Station on Broad Street was visited, and the manner of operating the large Wood screw pumps was explained by a guide. The excursion was then resumed, and the party proceeded out Canal Street to City Park Avenue, passing the new Delgado Trade School, and thence through City Park. The parties then proceeded out Canal Boulevard to Spanish Fort where a brief stop was made to inspect the old brick fortification and a historical sketch of the Fort was made by one of the guides. From there, the guests were driven to West End, thence along the New Basin shell road to the New Orleans Country Club where tea was served on the grounds of the club house under the giant live oaks. A photographer had been provided, and a panoramic view was taken of the group. The automobiles then proceeded to Carrollton Avenue, thence to St. Charles Avenue and through Audubon Park, and back again into St. Charles Avenue, down to Louisiana Avenue, thence to the river front. From this point, the route continued through the freight sheds and on the wharves, showing the visitors the facilities provided by the Port of New Orleans for loading and unloading cargoes. From there, the party proceeded to the Hotel. The total number in attendance on this excursion was 146.

Informal Reception and Dinner Dance.—An informal reception and dinner dance was held Thursday evening in the Ball Room of the Grunewald Hotel.

A typical Creole dinner was served and an orchestra furnished music for dancing. The guests were especially entertained with Danish Folk Dances, through the kindness of Mr. and Mrs. Ole K. Olsen and Miss Anna Scov. The number in attendance at the dinner dance was 111.

All-Day Excursion by Steamer.—Friday, April 20, was given over to an all-day excursion by steamer as arranged by the General Arrangements Committee. The purpose of the trip was to view the points of interest in New Orleans Harbor, the Inner Harbor Canal, and Lake Pontchartrain. This trip was taken aboard the steamer *Susquehanna*, starting about 11:00 A. M., proceeding up the river as far as the grain elevators and the new coal tipple. The steamer then turned and continued down stream as far as the crevasse which occurred in the Mississippi River at Poydras in 1922, and from there up the river again to the Inner Harbor Canal. The steamer was then put through the lock, and the visiting members were given an opportunity to see the operation of the lock at a 15-ft. difference of level in the stage of the Mississippi River and Lake Pontchartrain. The steamer then continued through the Industrial Canal and out into Lake Pontchartrain, thence to West End, arriving there at 4:00 P. M. The party landed at the Yacht Club and was conveyed to the city by a special train which had been arranged for by the Committee on Automobiles and Transportation. On the trip, the Outing Committee of the Louisiana Engineering Society presented the ladies with boxes of candy as favors from the Louisiana Engineering Society. A buffet luncheon was served *en route* on the steamer at noon, and the guests were given an opportunity to enjoy dancing, the music for which was provided by a jazz band. The points of interest were explained by guides with many stories of local interest. This excursion was participated in by 306 persons, and closed the program of the entertainment as provided by the Local Committees for the enjoyment of the guests, which proved the reputation New Orleans has for its hospitality.

Attendance.—There were 226 members and guests in attendance at the Spring Meeting, in addition to 133 students registered from Tulane University, making a total registration of 359.

Announcements

The Reading Room of the Society is open from 9 A. M. to 6 P. M., and from 7 P. M. to 10 P. M., every day, except Sundays, New Year's Day, Washington's Birthday, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day; during July and August, it is closed at 5 P. M.

Future Meetings

September 5, 1923.—8:00 P. M.—A regular business meeting of the Society will be held, and a paper by Harold D. Hussey, Esq., entitled "Proposed Loading for Highway Bridges", will be presented for discussion.

This paper is printed in this number of *Proceedings*.

Richmond, Va., Meeting

The Fall Meeting of the Society will be held at Richmond, Va., on October 17 to 20, 1923. The subject for discussion at the Technical Sessions will be "Highways". The excursions will include trips to points of historic interest in the vicinity of Richmond, with boat trips to Norfolk, Va., on Friday, October 19, and to Washington, D. C., on Saturday, October 20, 1923.

Searches in the Library

As the Library of the American Society of Civil Engineers has been merged in the Engineering Societies Library, requests for searches, copies, translations, etc., should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of service. A more comprehensive statement in regard to this matter will be found on pages 35 and 36 of the Year Book for 1923.

New Local Sections of the American Society of Civil Engineers

The Constitution of the following Local Section has been approved by the Board of Direction since the list was prepared for the 1923 Year Book, pp. 116 *et seq.*:

Syracuse Section (Constitution Approved by Board, April 16, 1923).

Louis Mitchell, President; Henry G. Throop, Secretary-Treasurer, 2117 South Geddes Street, Syracuse, N. Y.

New Student Chapters of the American Society of Civil Engineers

The following Student Chapters have been authorized by the Board of Direction since the list was prepared for the 1923 Year Book, pp. 21 *et seq.*:

College of the City of New York, Organized 1923.

Henry B. Clapp, Jr., President; Bruce C. Hayter, Secretary, College of the City of New York, New York, N. Y.

Syracuse University, Organized 1923.

Archer Jordon, President; Merrill H. Sturtevant, Secretary, 1434 Midland Avenue, Syracuse, N. Y.

University of Michigan, Organized 1923.

E. J. Giffels, President; J. A. Fisher, Secretary, University of Michigan, Ann Arbor, Mich.

University of North Dakota, Organized 1923.

K. N. Vaksvik, Secretary, 721 South 4th Street, Grand Forks, N. Dak.

University of Tennessee, Organized 1923.

McLamore Roberts, President; James A. Thrasher, Secretary, Vendome Building, Knoxville, Tenn.

Membership

(From April 4 to July 3, 1923)

Additions

MEMBERS		Date of Membership.
ALLEN, COVINGTON KENNEDY. Res. Engr., Water Dept., Baltimore City, in Chg. of Impvts. on Gunpowder Watershed, Lock Raven (Res., 2728 Maryland Ave.), Baltimore, Md.....	Assoc. M.	June 24, 1914
	M.	April 17, 1923
BANDY, EDWARD LEE. Designing and Constructing Engr., 328 West Missouri St., El Paso, Tex....	Assoc. M.	June 24, 1914
	M.	April 17, 1923
BEDELL, ARCHER WILSEY. City Engr. Faribault, Minn.	Assoc. M.	Mar. 7, 1921
	M.	April 17, 1923
BLAKE, HOWARD COLBURN. Chf. Engr., Morris & Co., 4621 Greenwood Ave., Chicago, Ill.....		May 28, 1923
BREWSTER, WILLIAM. Senior Highway Engr., U. S. Bureau of Public Roads, Box 407, Lewisburg, W. Va.....		May 28, 1923
BROCKWAY, PAUL LEMON. City Engr., Wichita, Kans.....		May 28, 1923
BULKELEY, CLAUDE AUGUSTUS. Superv. Engr., Mech. Experimental Div., Eng. Dept., E. I. du Pont de Nemours & Co., 12063 du Pont Bldg. (Res., 1313 West 8th St.), Wilmington, Del.....	Assoc. M.	July 2, 1913
	M.	April 17, 1923
BUNDY, OSCAR HAROLD. Engr., Central Hudson Gas & Elec. Co., 50 Market St., Poughkeepsie, N. Y.	Assoc. M.	Aug. 31, 1909
	M.	April 16, 1923
BURRELL, GLENN SMITH. Commander, C. E. C., U. S. N., Navy Yard, Brooklyn, N. Y.....	Assoc. M.	Oct. 14, 1919
	M.	April 17, 1923
CARREL, WILLIAM JOSEPH. Prof., Structural Eng., Univ. of Kentucky; Cons. Engr., Dept. of State Roads, 411 Linden Walk, Lexington, Ky.....	Assoc. M.	July 10, 1907
	M.	April 16, 1923
CLARKE, WILLIAM DEXTER. Div. Engr., Oregon State Highway Comm., 835 Union St., Salem, Ore....	Assoc. M.	May 28, 1923
	M.	May 31, 1910
CLARKSON, JAMES FRANCIS. (Jas. F. Clarkson & Co.), 421 Yeon Bldg., Portland, Ore.....	Assoc. M.	April 16, 1923
	M.	Dec. 6, 1915
CLEVELAND, HENRY BURDETT. Cons. San. Engr., 38 Park Row, Room 1102, New York, N. Y.....	Assoc. M.	May 28, 1923
	M.	May 28, 1923
DANIELS, ARTHUR. Dist. Engr., C. M. & St. P. Ry., 4801 Dupont Ave., South, Minneapolis, Minn..	Assoc. M.	May 28, 1923
	M.	May 28, 1923
DECKER, DAVID ALEXANDER. Care, Lock Joint Pipe Co., Box 758, Claremore, Okla.	Assoc. M.	May 28, 1923
	M.	May 28, 1923
FOSS, JAMES CALVIN, JR. Res. Engr., Hetch Hetchy Water Supply, South Fork Camp, Groveland, Calif.	Jun.	April 6, 1909
	Assoc. M.	Oct. 1, 1912
FOUGNER, HERMANN. Cons. Engr., 110 East 42d St., New York, N. Y.....	M.	April 17, 1923
	Assoc. M.	Feb. 1, 1905
FRAME, THOMAS CLARK. Div. Engr., Pennsylvania State Highway Dept., Room 403, Trust Co. Bldg., Franklin, Pa.....	M.	April 17, 1923
	Assoc. M.	June 3, 1915
FREEMAN, WILLIAM BRADLY. Cons. Engr., 311 Engineers Bldg., Denver, Colo.....	Assoc. M.	April 16, 1923
	M.	April 16, 1923
GARFIELD, CHESTER ARTHUR. Field Asst. Engr., Bronx Parkway Comm., 25 Webster Ave., Bronxville, N. Y.	Assoc. M.	Feb. 6, 1912
	M.	April 17, 1923

MEMBERS—(Continued)

Date of
Membership.

GILLESPIE, CHESTER GORDON. Director, Bureau of San. Eng., California State Board of Health, Berkeley (Res., 4136 Manila Ave., Oakland), Calif.	Jun. Assoc. M. M.	Sept. 6, 1910 May 6, 1914 April 16, 1923
GILLINGHAM, JOSEPH HARVEY. Asst. Chf. Engr., City of Philadelphia, 208 North 34th St., Philadel- phia, Pa.	M.	May 28, 1923
GRIFFIN, JAMES BIRNEY. City Engr., City Hall, Venice, Calif.	Assoc. M. M.	April 7, 1915 Dec. 4, 1922
HASELWOOD, FRED WILLIS. Asst. Div. Engr., Div. 1, California Highway Comm., Willits, Calif.	Jun. Assoc. M. M.	Jan. 3, 1907 Sept. 6, 1910 April 17, 1923
HIGSON, ALEXANDER HAMILTON. 520 Grant St., Albany, Ala.	M.	Dec. 4, 1922
HINDS, JULIAN. Engr., U. S. Reclamation Service, Wilda Bldg., Denver, Colo.		May 28, 1923
HOLDREDGE, NEIL CUMMINGS. Asst. Chf. Engr., North Jersey Dist., Water Supply Comm., Haskell, N. J.	Assoc. M. M.	Oct. 31, 1911 April 17, 1923
HUTCHINS, ROLAND ELLIS. Care, Layne & Bowler, 1972 Cowden Ave., Memphis, Tenn.	Jun. Assoc. M. M.	Nov. 1, 1910 Jan. 14, 1918 April 17, 1923
HUTTON, MURRAY LEE. Asst. Engr., Road Administra- tion, Iowa Highway Comm. (Res., 909 Kellogg St.), Ames, Iowa.	Assoc. M. M.	June 23, 1916 April 17, 1923
IRVINE, VIVION ROSE. Vice-Pres., Breck-Parrish Eng. Corpora- tion, Apartado No. 6, Barranquilla, Colombia.		May 28, 1923
IRVING, THOMAS HENRY. Mgr. and Engr., New York Office, Emile G. Perrot, 233 Broadway, Room 1008, New York, N. Y. ...		May 28, 1923
JAHN, NICHOLAS FIRTH. Constr. Engr. (Jahn & Bressi), 504 Thompson Bldg., Seattle, Wash. (Res., 253 South Broadway, Los Angeles, Calif.)	Assoc. M. M.	Mar. 9, 1920 April 17, 1923
JORDAN, JAMES CAREY. Chf. Draftsman, County Engr.'s Office, 301 Court House, Pittsburgh, Pa.	Assoc. M. M.	April 2, 1913 April 16, 1923
LINDSAY, JOHNSON CLEMMONS. Chf. Engr., Western Pipe Line Co., Box 1260, Casper, Wyo.		May 28, 1923
LUTHER, HOWARD BOURNE. Prof. of Civ. Eng., Univ. of Cincinnati, Cincinnati, Ohio.		May 28, 1923
MACDOWELL, ROLLIN FAY. County San. Engr., Cuya- hoga County, New Court House (Res., 2832 Chadbourne Rd.), Cleveland, Ohio.	Assoc. M. M.	Oct. 10, 1916 April 16, 1923
MCCOLLOUGH, CHARLES ANDREW. Chf. Engr., Pitts- burgh Bridge & Iron Works, Bessemer Bldg., Pittsburgh, Pa.	Assoc. M. M.	Nov. 28, 1916 April 16, 1923
MOTTIER, CHARLES HELVETIUS. Office Engr., Ill. Cent. R. R., 1201 South Michigan Ave. (Res., 1403 East 69th St.), Chicago, Ill.	Assoc. M. M.	June 18, 1918 April 17, 1923
MUDIE, JOHN McLEOD. Chf. Engr., Detroit United Lines, 2469 Canton Ave., Detroit, Mich.		May 28, 1923
NELSON, JAMES POYNTZ. Valuation Engr., C. & O. Ry., Richmond, Va.		May 28, 1923

MEMBERS—(Continued)

Date of
Membership.

O'LEARY, JOHN ELMER. Contr. Engr. and Mgr., New York Office, Pittsburg-Des Moines Steel Co., 50 Church St., New York, N. Y.		May 28, 1923
PANTON, EDWARD CULLODEN. Engr., U. S. Reclama- tion Service, Black Canyon Dam, Emmett, Idaho	} Assoc. M. M.	Jan. 17, 1921 April 17, 1923
PARDOE, WILLIAM SPRAGUE. Prof., Hydr. Eng., Civ. Eng. Dept., Univ. of Pennsylvania, Philadelphia, Pa.		April 19, 1920 April 17, 1923
PAWLING, GEORGE FRANKLIN. Pres. and Treas., Geo. F. Pawling Constr. Co., 1432 South Penn Sq., Philadelphia, Pa.	} Assoc. M. M.	April 4, 1906 April 17, 1923
PEASLEY, WILLIAM KERSHAW. O. W. Pape Bldg., Stapleton, N. Y.		Mar. 12, 1923
PENICK, JUNIUS MARSHALL. Chf. Engr. of Railways, Richmond, Petersburg & Interurban Div., Virginia Ry. & Power Co., 524 North Sheppard St., Richmond, Va.....		May 28, 1923
PENNIMAN, WILLIAM MERIT. Asst. Engr., U. S. Engr. Office, 428 Custom House, St. Louis, Mo.....		May 28, 1923
PROVOST, ANDREW J., JR., (Lederle & Provost), 39 West 38th St., New York, N. Y.....		May 28, 1923
RUDDY, JOHN ALOYSIUS. Asst. Engr., Transit Comm. City of New York, 49 Lafayette St., New York (Res., 8425 One Hun- dred and Thirteenth St., Richmond Hill), N. Y.....		May 28, 1923
SAUTER, WILLIAM RODGERS. Cons. Engr., 1305 Otis Bldg., Phila- delphia, Pa.		May 28, 1923
SCHNABEL, WILLIAM CHARLES. Cons. Engr., 3016 Har- ford Rd., Baltimore, Md.....	} Assoc. M. M.	Nov. 25, 1919 May 28, 1923
SCHWEIZER, RUDOLPH, JR. Village Engr., 82 Bergen Ave., Ridgefield Park, N. J.....		Assoc. M. Mar. 14, 1916 M. Jan. 19, 1923
SHAFFER, IVAN OSCAR. Engr. (Parker & Shaffer), 280 Madison Ave., New York, N. Y. (Res., 395 East 16th St., Brooklyn, N. Y.)	} Assoc. M. M.	Oct. 9, 1917 April 16, 1923
SHERMAN, ARTHUR LOUIS. Designing Engr., North Jersey Dist. Water Supply Comm., 20 Clinton St., Newark, N. J.....	} Jun. Assoc. M.	Jan. 4, 1910 Jan. 6, 1915 May 28, 1923
SHRYOCK, JOSEPH GRUNDY. Chf. Engr., Belmont Iron Works, 22d St. and Washington Ave., Philadel- phia, Pa.		Jun. April 2, 1901 Assoc. M. Dec. 5, 1906 M. April 16, 1923
SITES, FREDERICK ROBERT. Care, U. S. Steel Corpo- ration, 71 Broadway, New York, N. Y.....	} Assoc. M. M.	Mar. 2, 1915 Dec. 4, 1922
SNIDER, CLARENCE A. Secy. and Treas., The Union Sulphur Co., 33 Rector St., New York, N. Y.....		May 28, 1923
SNYDER, HARLAN HENRY. Engr.-Constructor, 1120 Lindsey Bldg. (Res., 551 Kenwood Ave.), Dayton, Ohio.....		Mar. 12, 1923
STEELE, ISAAC CLEVELAND. Chf., Div. of Eng., Dept. of Eng., Pacific Gas & Elec. Co., 445 Sutter St., San Francisco, Calif.....	} Assoc. M. M.	May 15, 1917 April 16, 1923
STILES, LINFORD SPEARING. With Brooklyn Union Gas Co., 176 Remsen St., Brooklyn, N. Y.....		May 28, 1923

August, 1923.]

MEMBERSHIP—ADDITIONS

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MEMBERS—(Continued)

Date of
Membership.

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STREETER, HAROLD WARNER. San. Engr., U. S. Public Health Service, Third and Kilgour Sts., Cincinnati, Ohio	Assoc. M. Mar. 2, 1915 M. April 16, 1923
TALLMAN, PAUL BERTRAM. Chf. Engr., Warren & Wetmore, New York (Res., 19 Yale Pl., Rockville Center), N. Y.....	Jun. Oct. 3, 1905 Assoc. M. Sept. 6, 1910 M. May 28, 1923
TAYLOR, NORTON LONGSTRETH. 402 City Hall, Tacoma, Wash.....	May 28, 1923
TELLES, FRANCISCO TEIXEIRA DA SILVA. Director and Chf. Engr., Companhia Constructora de Santos, Box 222, Santos, Brazil.....	Assoc. M. June 23, 1916 M. April 17, 1923
TYRRELL, HARRY EDWARD. Engr., M. of W., West. Dist., So. Ry., 715 Chemical Bldg., St. Louis, Mo.....	May 28, 1923
WALKER, FRANK BATES. Engr., M. of W., and Chf. Engr., Eastern Massachusetts Street Ry., 1 Beacon St., Boston, Mass....	May 28, 1923
WARD, EDWARD ASHTON. Pres., Treas. and Gen. Mgr., William H. Lutton Co., 267 Kearney Ave., Jersey, N. J.....	Jun. Oct. 5, 1909 Assoc. M. June 18, 1918 M. April 17, 1923
WASHBURN, FRANK EDWIN. Civ. Engr., The Missouri Val. Bridge & Iron Co., Box 188, North Little Rock, Ark.	Assoc. M. Sept. 3, 1913 M. April 16, 1923
WEBSTER, DANIEL THOMAS. Gen. Supt. and Asst. to Pres., Eidlitz & Sons, Inc., 41 East 42d St., New York, N. Y.....	May 28, 1923
WENDT, WYLIE BRODBECK. Prof., Civ. Eng., State School of Mines, Rapid City, S. Dak.....	Assoc. M. Oct. 9, 1917 M. April 16, 1923
WOOD, EDWARD AINSLIE. City Plan Engr., City Plan Comm., Dallas, Tex.....	Assoc. M. April 19, 1920 M. April 16, 1923
WOODRUFF, GLENN BARTON. Asst. to Bridge Engr., L. V. R. R., Bethlehem, Pa.....	Jun. Dec. 3, 1913 Assoc. M. June 23, 1916 M. April 17, 1923
WYCKOFF, CHARLES RAPELYE. Cons. Engr., 150 Nassau St., New York, N. Y.....	Jun. May 5, 1903 Assoc. M. Sept. 5, 1911 M. April 17, 1923

ASSOCIATE MEMBERS

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ADAMS, JOHN MIDDLETON. Asst. Engr., Obras Publicas, Santo Domingo, Dominican Republic.....	May 28, 1923
ADAMS, WILLIAM NEIL. Chf. Bridge Designer, Iowa Highway Comm., 711 Hodge Ave., Ames, Iowa.....	May 28, 1923
ADDISON, ELMER GRANT. Engr., Stone & Webster, Inc. (Res., 550 East Washington Lane, Germantown), Philadelphia, Pa....	May 28, 1923
ALGER, RICHARD WHARTON. Vice-Pres. and Treas., Marye, Alger & Alger, Inc., 801 Walton Bldg., Atlanta, Ga.....	Mar. 12, 1923
BAILEY, CARL CHESTER. With Baldwin Locomotive Works, 118 Grandview Rd., Ardmore, Pa.....	Jan. 15, 1923
BASS, CLARK NEIL. First Asst. State Highway Engr., 327 Seventh Ave., North, Nashville, Tenn.....	May 28, 1923
BENNETT, CHARLES STUART. Field Engr., Miami Conservancy Dist., Dayton, Ohio	Mar. 12, 1923
BERG, ULRIC WILHELM TORNOE. Designer, Barney-Ahlers Contr. Corporation, 110 West 40th St., New York (466 Second St., Brooklyn), N. Y.....	May 28, 1923

ASSOCIATE MEMBERS—(Continued).

		Date of Membership.
BERRY, WILLIAM CHAPMAN. Asst. Highway Engr., St. Louis County, Valley Park, Mo.....	May	28, 1923
BINTZ, WESLEY. City Engr., Lansing, Mich.....	May	28, 1923
BLACKIE, EDWIN EARL. Office Engr., Madera Irrig. Dist., 110 North K St., Madera, Calif.....	May	28, 1923
CACCIA, WALTER. With Rodgers & Hagerty, Inc., 503 West Union St., Bethlehem, Pa.....	Mar.	12, 1923
CALLAGHAN, MICHAEL JOSEPH. Engr. on Design for City Engr. of San Francisco, City Hall, Room 368, San Francisco, Calif....	May	28, 1923
CAMP, THOMAS RINGGOLD. 403 Cotton Exchange Bldg., Fort Worth, Tex.....	Jun. Mar.	7, 1921
COBURN, WILLIAM TURLEY. 2714 Quarry Rd., N. W., Washington, D. C.	May	28, 1923
COLEMAN, DAVID. Care, California Ink Co., Berkeley, Calif.....	Mar.	12, 1923
DEMUTH, JACK ERWIN. Dist. Mgr., The Parsons Co. and Iowa & Western Wheeled Scraper Co., 1737 Walnut St., Kansas City, Mo.....	May	28, 1923
DEPUY, AUGUSTUS BRIGHTLY. Res. Engr., Remington & Vosbury, 601 Market St., Camden (Res., 111 Washington Ave., Collingswood), N. J.....	May	28, 1923
DIEFENDORF, ADELBERT. 112 West Stoughton St., Urbana, Ill....	Mar.	12, 1923
DIEHL, JOHN HENRY. Transitman and Chf. of Party, U. S. Bureau of Public Roads, 403 Fred J. Kiesel Bldg., Ogden, Utah....	May	28, 1923
DILLMAN, DANIEL WALTER. Civ. and Min. Engr., 80 Altoona Trust Bldg., Altoona, Pa.....	May	28, 1923
DILLMAN, GROVER CLEVELAND. Deputy Commr., State Highway Dept., Lansing, Mich.....	Mar.	12, 1923
DODD, LESLIE HAROLD. Cons. Engr. (Dodd & Finney), 216 West 6th St., Topeka, Kans.....	Dec.	4, 1922
DOERR, HAROLD FRANCIS. Archt.-Engr. (Doerr & Doerr), 7 West Madison St., Chicago, Ill.....	May	28, 1923
DUFFEY, JAMES THOMAS. Miami Beach, Fla.....	Jan.	16, 1923
DUNN, ALBERT CHARLES. Highway Engr., U. S. Bureau of Public Roads, Box 415, Richmond, Va.....	Mar.	12, 1923
ELIASSEN, SIGURD. Survey Insp., Chihli River Comm., 147 Council Rd., Tientsin, China.....	Dec.	4, 1922
ENDERSBY, VICTOR ARTHUR. Ry. Supt., Lyon Hill & Co., Port Angeles, Wash.	May	28, 1923
EVANS, EDWARD ARTHUR. Structural Engr. and Gen. Mgr., Walker & Eisen, 326 Pacific Finance Bldg., Los Angeles, Calif.....	Jun. Dec.	6, 1920
FORBES, THOMAS AUSTIN. 206 West 70th St., New York, N. Y.....	Assoc. M. May	28, 1923
FOWLER, CHARLES HENRY. Contr. Engr., Truscon Steel Co., 466 South Rebecca St., Pittsburgh, Pa.....	Jun. Oct.	11, 1920
FRANK, JACOB. Engr., E. M. Waldron, 27 Central Ave. (Res., 9 Monmouth St.), Newark, N. J....	Assoc. M. May	28, 1923
FRASER, WILLIAM ALEXANDER. Chf. Engr., Cortez Oil Corporation, Box 216, Tampico, Tamps., Mexico.....	May	28, 1923

August, 1923.]

MEMBERSHIP—ADDITIONS

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ASSOCIATE MEMBERS—(Continued)

Date of
Membership.

FROMHERZ, ALVIN MATTHEW. With Jos. Fromherz, 507 Title Guar- antee Bldg. (Res., 1133 Fourth St.), New Orleans, La.....	May	28, 1923
GREENLEY, LOUIS ALFRED. Res. Engr. with Dwight P. Robinson & Co., Caixa Postal 133, Fortaleza, Ceara, Brazil.....	Mar.	12, 1923
GRIFFITH, LLEWELLYN BROOKS. Capt., Corps of Engrs., U. S. A., Kress Bldg., Corpus Christi, Tex.....	Mar.	12, 1923
HACHENBERG, LOUIS MARTIN. New York Representative, The San. Eng. Co. of Pittsburgh, 250 West 57th St., Room 429, New York, N. Y.....	May	28, 1923
HANDE, JOHN HALLWARD. Accounting Engr., B. & O. R. R., 34 Strathmore Ave., Hamilton, Baltimore, Md.....	May	28, 1923
HARDAWAY, BENJAMIN HURT, JR. Supt., Hardaway } Jun. Contr. Co., Inc., Columbus, Ga..... } Assoc. M.	Sept.	12, 1916
	May	28, 1923
HARVEY, FREDERICK GEORGE. Office Engr., Spokane County Constr. Engr., Court House, Spokane, Wash.....	Jan.	15, 1923
HAUSMAN, ISAAC. Mgr., The Building Products Co., Box 416, Toledo, Ohio.....	May	28, 1923
HAWKS, MONTGOMERY WADDELL. Asst. Estimating } Jun. Engr., Southern California Edison Co., Res. } July Engr.'s Office, Big Creek, Calif..... } Assoc. M.	May	11, 1921
	May	28, 1923
JENNINGS, ALFRED HAROLD. Project Engr., State Highway Dept., Box 154, Isabel, Okla.....	May	28, 1923
JONES, ALLEN ARUNAH. 16 Balsam St., Saranac Lake, N. Y.....	Mar.	12, 1923
LANE, ALBERT LOSSEN. 1st Lieut., Corps of Engrs., } Jun. U. S. A., 11th Engrs., Corozal, Canal Zone, } April Panama } Assoc. M.	Jan.	16, 1918
	Jan.	15, 1923
LARSEN, HERMAN. Engr. and Builder (Slattery & Larsen Munic- ipal Constr. Co.), Boonville, Ind.....	May	28, 1923
LEACH, HARRY RAYMOND. Prin. Asst. to Robert E. } Jun. Horton, Voorheesville, N. Y..... } Assoc. M.	Aug.	31, 1915
	May	28, 1923
LE COCQ, FRANK. City Engr., City Engr.'s Office, Aberdeen, S. Dak.	May	28, 1923
LEGRIS, CHARLES ERNEST. R. F. D. 10, Paw Creek, N. C.....	Jan.	15, 1923
LEIGH, JAMES BELL. Res. Engr., Klyce & Kackley, Box 103, Osceola, Ark.	Jan.	15, 1923
LENT, RICHARD PERKINS. Res. Engr., R. D. Gladding, Box 81, Henderson, N. C.....	May	28, 1923
LEWIS, DUDLEY LELAND. City Engr., City Hall, Fort Worth, Tex..	May	28, 1923
LOVELL, CARLETON WOODWARD. Field Engr., W. F. Carey Co., Inc., Box 31, Dennis, Mass.....	May	28, 1923
LOXLEY, LEROY EVERETT. Res. Engr., Dept. of Public Works of Dominican Republic, San Pedro de Macoris, Dominican Republic	Jan.	15, 1923
MACILHENNY, JOHN MURRAY. 277 Linwood Ave., Buffalo, N. Y....	May	28, 1923
MCMASTER, ROBERT NEER. Surveyor and Engr., Chanslor-Canfield Midway Oil Co., Box M, Redondo Beach, Calif.....	May	28, 1923
MAGOON, ESTUS HUBERT. San Engr. for Comissão Rockefeller, Caixa Postal 49, Rio de Janeiro, Brazil.....	Mar.	12, 1923
MELCHER, CLARENCE LEWIS. County Supt. of Highways, Bureau County, Box 263, Princeton, Ill.....	May	28, 1923

ASSOCIATE MEMBERS—(Continued)

	Date of Membership.
MILLS, LOYOLA LEONARD. City Engr., Room 20, City Hall (Res., 1249 Ripley St.), Santa Rosa, Calif.....	May 28, 1923
MITCHELL, THOMAS COLE. Care, American Legation, Teheran, Persia	Mar. 12, 1923
MORELAND, JAMES EDGAR. Div. Engr., Tennessee Highway Dept., 327 Seventh Ave., North, Nashville, Tenn.....	May 28, 1923
NICHOLSON, HORACE BOULDEN. Designer, P. M. Sax, 2121 Porter St., Philadelphia, Pa.....	May 28, 1923
NOFTZGER, LEE. 505 Beacon Bldg., Wichita, Kans.....	May 28, 1923
NOLAN, DANIEL CARROLL, JR. Pres., Wulff Eng. Co., Tarrytown (Res., 28 Bayley Ave., Yonkers), N. Y.....	Mar. 12, 1923
PARANT, JOSEPH ALBERT. Asst. Corporate Engr., B. & M. R. R., and Cons. Engr. on Claims, Maine Cent. R. R., 222 Franklin St., Melrose Highlands, Mass.....	Dec. 4, 1922
PARKER, FRANK STANLEY. (Parker & Shaffer), 280 Madison Ave., New York, N. Y.....	May 28, 1923
PATERSON, GRAHAM FERGUSON. Designer, Sewer Section, Dept. of Works, City Hall, Toronto, Ont., Canada.....	Mar. 12, 1923
PATTERSON, ELLIOTT REMINGTON. 391 South Main St., Geneva, N. Y.	May 28, 1923
POLLOCK, CARL DEFORREST. Supt. of Constr., Alaskan Eng. Comm., Anchorage, Alaska.....	Mar. 12, 1923
PRICE, FREDERICK SOMERS. Civ. Engr. and Surv. (Price & Price), 1112 King St., Wilmington, Del.....	May 28, 1923
PULLIAM, HENRY ABBETT. Chf. Engr., Board of Drainage Comms. for Mayfield Creek Drainage Dist., City Hall, Paducah, Ky.	May 28, 1923
REIDY, MAURICE ALPHONS, JR. Constr. Mgr., Purdy & Henderson Co., 45 East 17th St., New York, N. Y.....	May 28, 1923
RONEY, JAMES GIVENS. Asst. on Engr. Corps, Penn- sylvania System, Room 305, Federal St. Station, } Pittsburgh, Pa.	Jun. July 11, 1921 Assoc. M. May 28, 1923
ROWLAND, HERBERT RAYMOND. Chf. Engr., Moody Eng. Co.; Secy., Moody Constr. Co., 90 West St., New York, N. Y.....	May 28, 1923
SCHRAMM, ARTHUR FELIX. Sales Engr., Western Metal Mfg. Co., Box 394, Victoria, Tex.....	May 28, 1923
SCHROEDER, ROBERT ARMENAC. Asst. in Chg. of De- sign, Hugh L. Copper & Co., 101 Park Ave., New } York, N. Y.....	Jun. April 19, 1920 Assoc. M. May 28, 1923
SCHUYLER, PHILIP KINGSLAND. Asst. Constr. Engr., State High- way Comm., Raleigh, N. C.....	May 28, 1923
SCOTT, GARRETT WILLIS. Pres., Scott & Trinkle, Big Stone Gap, Va.	May 28, 1923
SCOTT, HENRY CHATARD. Constr. Engr., Bridge Dept., North Carolina State Highway Comm., Box 1218, Wilmington, N. C.	Dec. 4, 1922
SINGLETON, JACK. Chf. Engr., The Capital Iron Works Co., Topeka, Kans.	Jan. 15, 1923
STYER, WILHELM DELP. Capt., C. E. C., U. S. A., Office, Chf. of Engrs., War Dept., Washington, D. C.....	Jan. 15, 1923
SUTTON, WILLIAM GODFREY. Asst. Engr., South African Irrig. Dept., Union Bldgs., Pretoria, South Africa.....	Mar. 12, 1923

August, 1923.]

MEMBERSHIP—ADDITIONS

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ASSOCIATE MEMBERS—(Continued)

Date of
Membership.

SWAINSON, OTIS WILLIAM. Care, U. S. Coast and Geodetic Survey, Washington, D. C.	Mar. 12, 1923
SWART, REINIER JOSEPH. Designer and Draftsman, United Verde Copper Co., Box 775, Clarkdale, Ariz.	May 28, 1923
TATE, NEWMAN. St. Augustine's Terrace, Leeds Rd., Dewsbury, Yorkshire, England	Mar. 12, 1923
TILLMAN, FRANK ANDREW. Commr. of Public Works and Engr., Village of Johnson City, 23 Lewis St., Johnson City, N. Y.	May 28, 1923
TOMLINSON, DANIEL ANDERSON. Mgr., Railways Bureau, Portland Cement Assoc., 606 Hinman Ave., Evanston, Ill.	May 28, 1923
VON GERICHTEN, EDMUND. Valuation Engr., Philadelphia Rapid Transit Co. and International Ry. (Res., 123 East Tul- pehocken St., Germantown), Philadelphia, Pa.	Mar. 12, 1923
WALLER, LAURENCE JOHN. Structural Engr., John C. Austin, 647 North Occidental Boulevard, Los Angeles, Calif.	May 28, 1923
WARNE, RONSON JOSEPH. 115 Broad St., Matawan, N. J.	May 28, 1923
WATERS, ERNEST GILBERT. Asst. to Chf. Engr., Cal. } Jun. ifornia Oregon Power Co., Medford, Ore. } Assoc. M.	June 6, 1921 May 28, 1923
WELLE, EBERHARD. Asst. Engr. and Asst. Designing Engr., New York State Bridge & Tunnel Comm. and New Jersey Inter- state Bridge & Tunnel Comm., Hall of Records, New York, N. Y. (Res., 124 Trenton Ave., Lakeview, N. J.)	May 28, 1923
WICHMAN, RALPH DARWIN. Elec. Engr., Pacific Gas & Elec. Co., 445 Sutter St., San Francisco, Calif.	Mar. 12, 1923
WILSON, EDGAR KENNARD. Office Engr., The Pitometer Co., 917 Putnam Ave., Plainfield, N. J.	May 28, 1923
WOOLWORTH, WENDELL HOWARD. Representative at Large, Johnson & Higgins, 49 Wall St., New York, N. Y.	Jun. Sept. 12, 1916 Assoc. M. May 28, 1923

AFFILIATES

DOWS, WILLIAM GREENE. Pres., C. R. & I. Ry. and Iowa Railway & Light Co., Cedar Rapids, Iowa	May 28, 1923
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JUNIORS

ALEXANDER, LOUIS JESSUP. Asst. Engr., J. B. Lippincott, 1104 Central Bldg., Los Angeles, Calif.	Mar. 12, 1923
ALLAN, DONALD. 409 L. B. Harrison Hotel, Cincinnati, Ohio	Dec. 4, 1922
ALLEN, GLENN HAROLD. 923 Washington Ave., Evansville, Ind.	Oct. 2, 1922
AMREICH, LOUIS SAUL. 103 Stockholm St., Brooklyn, N. Y.	May 28, 1923
BIEMANN, BERNHARD FREDERICK. 1243 Thieriot Ave., New York, N. Y.	Dec. 4, 1922
BINGHAM, JOHN ARMOUR, JR. 32 Kelvin St., Forest Hills, N. Y.	May 28, 1923
BUECHNER, CASPER. Const. Dept., Textile Machine Works, Reading, Pa.	May 28, 1923
CRUSE, CREIGHTON. R. F. D. No. 4, Hempstead, N. Y.	Jan. 15, 1923
DEDOULOFF, ALEXANDER ALEXANDER. Rodman, C. G. W. R. R., Care, Chf. Engr.'s Office, Chicago, Ill.	May 28, 1923
DUNN, ALLISON VAN VLIET. Care, Turner Constr. Co., Box 113, Sanford, Me.	May 28, 1923

JUNIORS—(Continued)		Date of Membership.
FLANEL, SAMUEL BARAUCH. Draftsman, J. M. Fuertes, 154 West 98th St., New York City.....		Jan. 15, 1923
FLEMING, ERIC. Engr. (Asst. City Engr.), 209 Townsend St., New Brunswick, N. J.....		May 28, 1923
FLORANCE, EDWIN. Engr., Moran, Maurice & Proctor, 161 Livingston Ave., New Brunswick, N. J.....		May 28, 1923
FOX, JAMES McCUTCHEN. Steel Designer, Purdy & Henderson Co., 45 East 17th St. (Res., 542 West 112th St.), New York, N. Y.		May 28, 1923
FRANKENTHAL, LOUIS. 2508 Broadway, New York, N. Y.....		May 28, 1923
GARDINER, JOHN HAINES. Asst. Engr., U. S. Geological Survey, University Station, Box 162, Tucson, Ariz.....		May 28, 1923
GORDON, MORRIS JOSEPH. 201 Humboldt Ave., Roxbury, Mass....		Jan. 15, 1923
JAYASWAL, UMESH SINGH. Asst., Braithwaite & Co., Ltd., Mirzapur, U. P., India.....		May 28, 1923
KATKORIA, CHHABILDAS RAGHUNATHJI. With The Tata Hydro-Elec. Power Supply Co., Ltd., Lonaula, Poona Dist., India..		Mar. 12, 1923
KRUEGER, HERMAN JOHN. Asst., Bridge and Bldg. Dept., U. S. Steel Products Co., 30 Church St., New York, N. Y. (Res., 191 Sherman Ave., Jersey City, N. J.).....		May 28, 1923
MEIERS, GEORGE RUDOLF. Res. Engr., Dept. of Public Works, 40 Boulevard St., Mittineague, Mass.....		May 28, 1923
MILLER, HAROLD THOMAS. 2d Lieut., C. E. C., U. S. A., 13th Engrs., Fort Humphreys, Va.....		May 28, 1923
NADEL, LOUIS. Care, Gavin Hadden, 280 Madison Ave. (Res., 1182 Clay Ave.), New York, N. Y.....		May 28, 1923
NISHIMURA, SHOICHI. Draftsman with J. A. L. Waddell, 35 Nassau St., New York, N. Y.....		May 28, 1923
PAINE, RALPH KLINE. 2634 Benvenue Ave., Berkeley, Calif.....		Jan. 15, 1923
PERRIN, WILLIAM WEAVER. 1506 East Ferry St., Lafayette, Ind....		May 28, 1923
PIIT, BENITO ARCADIO. 1943 West Adams St., Chicago, Ill.....		Jan. 15, 1923
PIRKNER, HERBERT RUDOLF. With White Constr. Co., 169 Senator St., Brooklyn, N. Y.....		May 28, 1923
PROCTOR, THOMAS WHITE. 23 Hammond St., Chestnut Hill, Mass..		May 28, 1923
RAPP, GEORGE MARVIN. Junior Engr., Delaware River Bridge Joint Commission, 5042 Walnut St., Philadelphia, Pa.....		Mar. 12, 1923
RAPP, WILLIAM GREENFIELD. 3408 Race St., Philadelphia, Pa....		May 28, 1923
RICHARDS, WALTER CARLETON. With Turner Constr. Co., Care, Sanford Mills, Sanford, Me.....		May 28, 1923
RIFKINSON, MARCUS AARON. Draftsman, Gavin Hadden, 233 Broadway, New York (Res., 1709 Nostrand Ave., Brooklyn), N. Y.		Jan. 15, 1923
SANTELMANN, ALFRED WILLIAM. 102 Glenn Ave., Ann Arbor, Mich.		May 28, 1923
SCHULTHEIS, ARTHUR. Engr. with J. G. White Eng. Corporation, 43 Exchange Pl., New York, N. Y.....		May 28, 1923
TOPPING, HOWARD FRANKLIN. Draftsman and Shop Insp., Am. Bridge Co., Riverside Hall, Gary, Ind.....		May 28, 1923
WARNER, JAMES EARL. Gantt's Quarry, Ala.....		Dec. 4, 1922
WOLFF, ISADORE MICHAEL. Draftsman, White Constr. Co., 95 Madison Ave. (Res., 1669 Bryant Ave.), New York, N. Y.....		Mar. 12, 1923

JUNIORS—Continued

	Date of Membership.
WOODWARD, HAROLD STONE. 2 Chamberlain Parkway, Worcester, Mass.	May 28, 1923
ZUSI, CHARLES JOSEPH. Engr., Freight Container Bureau, Am. Railway Assoc., 30 Vesey St., New York, N. Y. (Res., 219 Virginia St., Hillside, N. J.)	May 28, 1923

Reinstatements

MEMBERS

	Date of Reinstatement.
DAVIS, NOAH WILSON.....	Mar. 31, 1923
KENT, HERBERT VAUGHAN.....	May 4, 1923

Resignations

ASSOCIATE MEMBERS

	Date of Resignation.
LITTLE, GERALD THOMPSON.....	May 4, 1923
LUND, ROBERT LEATHAN.....	Mar. 31, 1923
SWENSSON, OTTO JORDAN.....	May 4, 1923

Deaths

- ARMSTRONG, WILLIAM COULSON. Elected Member, June 1, 1909; died June 11, 1923.
- BACHERT, AUGUSTUS ELLSWORTH. Elected Member, June 3, 1908; died July 11, 1923.
- BRANCH, THOMAS PETTUS. Elected Associate Member, February 5, 1902; Member, May 5, 1915; died May 28, 1923.
- BULLOCK, WILLIAM DEXTER. Elected Junior, September 5, 1887; Member, July 4, 1888; died April 30, 1923.
- COANE, HENRY EDWARD. Elected Associate Member, August 31, 1915; Member, April 26, 1921; died April 29, 1923.
- COMBER, WILLIAM GEORGE. Elected Member, June 24, 1914; died April 8, 1923.
- FLAHERTY, EDWARD THOMAS. Elected Associate Member, February 28, 1911; Member, October 11, 1920; died April 1, 1923.
- HAMILTON, FRANK HENRY. Elected Member, June 30, 1910; died April 23, 1923.
- HERING, RUDOLPH. Elected Member, January 5, 1876; died May 30, 1923.
- HOPPER, JOHN JACOB. Elected Junior, May 5, 1886; died May 16, 1923.
- HUNTER, WALTER GLADDEN. Elected Associate Member, April 30, 1912; Member, May 31, 1916; died April 1, 1923.
- JACOB, CLARENCE CECIL. Elected Associate Member, April 7, 1915; died February 20, 1923.
- KENYON, WILLIAM JOHN CHARLES. Elected Affiliate, May 31, 1910; died March 18, 1923.
- KNIGHT, CHARLES WILLIAM. Elected Member, July 9, 1906; date of death unknown.
- MACNICOL, JOHN ALEXANDER. Elected Member, September 1, 1897; died January 11, 1923.
- MAY, WILLIAM ANDREW. Elected Member, July 6, 1881; died June 1, 1923.
- MILLER, EDWARD THOMAS EVERY. Elected Associate Member, December 5, 1911; Member October 11, 1920; died April 17, 1923.
- PROAL, ARTHUR BREESE, JR. Elected Member, March 7, 1906; died August 21, 1922.
- RAPP, FRANK ARTHUR. Elected Member, June 16, 1919; died April 13, 1923.

- ROLLO, RALPH ALEXANDER. Elected Associate Member, September 10, 1918; died February 25, 1923.
- SCOTT, JAMES ROBINSON, JR. Elected Junior, March 1, 1910; Associate Member, September 3, 1912; Member, April 21, 1920; died May 3, 1923.
- SORZANO, JULIO FEDERICO. Elected Member, September 3, 1884; died June 27, 1923.
- STARR, REX CAMERON. Elected Associate Member, January 2, 1912; Member, May 15, 1917; died May 3, 1923.
- TAIT, CLARENCE EVERETT. Elected Member, July 6, 1920; died April 5, 1923.
- THOMAS, BENJAMIN FRANKLIN. Elected Member, April 6, 1887; died April 14, 1923.
- WEBER, GEORGE ADAM. Elected Affiliate, February 6, 1900; died March 29, 1923.
- WILLIAMSON, CHARLES SUMNER. Elected Associate Member, February 7, 1906; Member, October 31, 1911; died March 31, 1923.
- YOUNG, HENRY AMERMAN. Elected Junior, March 5, 1901; Associate Member, December 2, 1903; Member, March 5, 1912; died April 23, 1923.

Total Membership of the Society, July 3, 1923

Members	4 752
Associate Members	5 325

Corporate Members	10 077
Honorary Members	11
Juniors	538
Affiliates	166
Fellows	9

Total 10 801

Engineering Societies Employment Service

An Engineering Societies Service Bureau was established December, 1918, as an activity of Engineering Council. It was managed by a board made up of the Secretaries of the four Founder Societies, and funds for its maintenance were provided by these Societies. On January 1, 1921, this Bureau was taken over by The Federated American Engineering Societies and was known as the Employment Service of that organization. Recently, the management of the Service has been taken over by the Founder Societies. A weekly Employment Bulletin, listing the positions available, may be seen at the office of any Secretary of a Local Section. Members of the American Society of Civil Engineers who desire to register should apply for further information, registration forms, etc., to Walter V. Brown, Manager, Engineering Societies Building, 29 West 39th Street, New York, N. Y. In order to be included in the list published in *Proceedings*, copy must be received on or before the first of each month. All communications should be addressed to Mr. Brown, giving number of position, name, address, and membership in Engineering Society.

Employment Bulletin

POSITIONS AVAILABLE

FIRST-CLASS DRAFTSMAN on water-supply work and civil engineering drawings. Rapid worker and first-class tracer. Application by letter, stating education and experience. Must be a resident of New Jersey. Salary not stated. Location, N. J. R-900.

BRIDGE DETAILER for steel and concrete highway bridges. Temporary. Resident of New Jersey. Application by letter. Salary not stated. Location, New Jersey. R-931.

RODMEN (2) for highway work. Residents of New Jersey. Application by letter. Salary not stated. Location, New Jersey. R-932.

SALES ENGINEER GRADUATE for New England Territory. Power plant and industrial furnace experience essential. Should know New England trade. Application by letter. Salary not stated. Location, New England. R-937.

STRUCTURAL STEEL DETAILER on general work. Application in person. Salary not stated. Location, New York State. R-943.

DRAFTSMAN for detail and assembly drawings on flash-light products. Application in person. Salary not stated. Location, N. J. R-1034.

ESTIMATOR, experienced, steel plate construction. Application by letter. Salary not stated. Location, Pa. R-1036.

FIRST-CLASS MAN to handle development of working drawings, familiar with good design and preferably a college man who can handle job from sketches to completion. He would somewhat approach the position of Head Draftsman, at least, he would have entire charge of one job at a time. In a larger office, he would prob-

ably be called a Job Captain. Write fully of experience, stating with what architects it was gained and length of time working with them. Also age, married or single, religious affiliation, architectural education, and salary desired. Send sample of work. In submitting sample, would like to see a large scale architectural detail that he made himself and also a complete set of plans, the smaller the better, that were made under his supervision in order that we may know what he considers proper for a complete set of plans to contain. Location, Texas. R-1134.

WANTED: Engineer in consulting engineer's office, who is exceptionally well grounded in theoretical engineering, especially thermodynamics and mathematics, for research work. Preference to one having had Diesel engine and steam turbine experience. Reading knowledge of German desirable. Salary \$2 500 to \$5 000, according to ability. Give full details of education and experience in letter. Location, New York City. R-1195.

DRAFTSMAN. Man with several years experience on highway or railroad work, who can plot field notes, establish grades, compute and balance earth work, and do tracing. Application by letter. Salary not stated. Location, Pa. R-1300.

DESIGNER, having had at least five years' experience on reinforced concrete design on industrial buildings; flat slab design. Application by letter. Salary not stated. Location, New York City. R-1318.

ENGINEER with experience in paper mill work, to work on the board and capable of all around work. Application by letter. Salary not stated. Location, Ill. R-1337.

RECENT GRADUATE to do research work in connection with soap and alkali compounds, and to make experimental tests

for Sales Department. Application by letter. Salary not stated. Location, New York City. R-1340.

CIVIL ENGINEER to instruct in a small engineering school in Southwest. Must be a graduate of a recognized school and be familiar with road work, Federal projects, and related subjects. Application by letter, stating education, experience, references, salary expected. R-1346.

EDITORIAL ASSISTANT, college graduate with experience in the preparation of engineering reports, bulletins, publications, or in an editorial office of a publisher of scientific books or magazines; must have a knowledge of English composition and of one or more foreign languages, to enable him to edit and compile data from foreign publications. Application by letter. Salary not stated. Location, Ohio. R-1348.

PATENT SPECIFICATION WRITER, Engineer or Technical Graduate, with patent law experience of two years. Application by letter. Salary not stated. Location, Ohio. R-1355.

1923 GRADUATE, Stevens or Rutgers, Ceramic Course, to do drafting and general engineering work, along industrial lines. Application by letter. Salary not stated. Location, N. J. R-1360.

SALESMAN for company manufacturing ornamental iron work and light structural steel work. Must know building trade. Application in person. Salary not stated. Location, New York City. R-1363.

DESIGNING DRAFTSMAN (2) for work consisting of the design, preparation of plans, and supervision of construction of municipal projects, such as water-works systems, including building structures and structures relating to purification plants, power plants, sewerage and sewage disposal systems, and street paving. Application by letter. Salary not stated. Location, North Carolina. R-1375.

DRAFTSMAN with two or more years experience in reinforced concrete and knowledge of architectural floor plans on industrial buildings. Bring sample of work. Application in person. Salary not stated. Location, New York City. R-1378.

SUPERINTENDENT to organize street gang and take charge of asphalt plant for city paving. Highway and street asphalt experience essential. Application by letter. Salary not stated. Location, Mass. R-1382.

SALES ENGINEER for company making rolling steel doors. Application by letter. Salary not stated. Location, New York City. R-1387.

SALESMAN, industrial kerosene engines, for Eastern New York, Massachusetts, and Connecticut Territory. Man familiar with contractors' trade. Salary, commission, and expenses. Application by letter. R-1388.

SALES ENGINEER, 28-40 years of age, with considerable sales experience to sell paints and hardware to manufacturers. Application by letter. Salary not stated. Location, Traveling, Eastern States. R-1430.

SALES ENGINEER, young Civil Engineer, under 25 years of age, to be trained in

sales work. Application by letter. Salary not stated. Location, New York City. R-1432.

CIVIL ENGINEERS familiar with design, construction, maintenance, and operation of hydro-electric plants, also with all phases of the collection and interpretation of stream flow data, as well as making an interpretation of topographic maps required in the study of water-power problems. Application by letter. Salary not stated. Location, Tenn. R-1442.

RECENT GRADUATES (2) 1923, to do inspection work on underground conduits and cables. Application by letter. Salary not stated. Location, Pa. R-1454.

MECHANICAL ENGINEER between 30-40 years to act as Operating Superintendent for a cement plant. Experience in manufacture of cement is desirable, real essentials being ability to handle men and get most out of them, and willingness to follow instructions exactly. Application by letter. Salary not stated. Location, New York State. R-1455.

RECENT CIVIL ENGINEERING GRADUATE to do general engineering work in connection with rock drilling. Will be working on drill boat. Application by letter. Salary not stated. Location, New York City. R-1456.

DRAFTSMAN experienced on reinforced concrete buildings. Application by letter. Salary not stated. Location, New York City. R-1458.

RECENT CIVIL ENGINEERING GRADUATE, having had some drafting experience along industrial building lines, to do general engineering and inspection work for firm of consulting engineers. Application by letter. Salary not stated. Location, New York City. R-1463.

1923 GRADUATE MECHANICAL ENGINEER for apprentice course leading to sales. Salary \$100 for the first 6 months, \$110 per month the second 6 months and \$130 at the beginning of the second year. Application by letter. Location, not stated. R-1465.

ASSISTANT PROFESSOR IN GENERAL ENGINEERING DRAWING. Must be a graduate of a recognized technical school, with engineering experience. Application by letter. Salary not stated. Location, Ill. R-1472.

EXPERIENCED TOPOGRAPHICAL DRAFTSMEN for work in connection with the survey of the Tennessee River and tributaries. Application by letter. Salary not stated. Location, Tenn. R-1474.

PUMP TESTER WANTED. Man having experience in the testing of centrifugal pumps, steam pumps, and power pumps. Must be thoroughly familiar with modern test floor methods and competent to handle electrical and hydraulic equipment. Application by letter stating age, experience, present salary, and salary expected. Location, Mich. R-1475.

SUPERINTENDENT for a cement plant, having a capacity of about 250 bbl. per day. Must be able to take entire charge of plant and capable of checking up chemical analysis of cement when necessary. Application by letter. Salary not stated. Location, Peru. R-1476.

ENGINEER familiar with design of water-power development. Application by letter. Salary not stated. Location, New York State. R-1482.

ASSISTANT CIVIL ENGINEER, single, for work on sugar plantation. College graduate, two years' experience, board and lodging while in the field, but while at headquarters, lodging only is furnished; board will cost \$30 per month. Transportation from New York to Santo Domingo and return upon completion of year's contract will also be furnished. Application by letter. Salary not stated. Location, Santo Domingo. R-1484.

SUPERINTENDENT of malleable iron foundry. Must have a complete knowledge of all departments of foundry work, and ability to handle 300 men, mostly Americans. Must have had several years practical experience in executive management of malleable iron foundry. Application by letter. Salary not stated. Location, New England. R-1490.

ENGINEER with automotive manufacturing experience to do sales work, calling on manufacturers for an oil company. Application by letter. Salary not stated. Location, West. R-1491.

ELECTRICAL, MECHANICAL, OR CIVIL ENGINEER who has had 5 or 6 years' practical experience, preferably in public utility operation and construction for accident investigation and prevention work. Also, should have gas plant experience. Application by letter, stating age, education, and experience. Salary not stated. Location, traveling about one-half of time. R-1493.

DRAFTSMAN. Character of work—locomotives and freight cars. Experience—not less than three years on similar work. Education—high school or equivalent. Application by letter. Salary not stated. Location, Colo. R-1497.

RECENT GRADUATE CIVIL ENGINEER to do drafting work for company manufacturing steel windows and building specialties, with the view of developing into an estimator and salesman. Application by letter. Salary not stated. Location, New York City. R-1503.

DRAFTSMAN capable of working on details for industrial buildings and particularly on steel work and machine design. Application in person. Salary not stated. Location, N. J. R-1504.

ENGINEERS who are familiar with architects and the method architects use in doing business, to call on them and tell about a casement window hardware and get them to specify it for buildings they are supervising. Application by letter. Salary not stated. Location, New York City. R-1507.

ENGINEERS to sell industrial service to manufacturers. Application by letter. Salary not stated. Location, New York City. R-1509.

STRUCTURAL.—Wanted, a thoroughly competent structural steel draftsman on buildings and small miscellaneous structures. Application by letter. Salary not stated. Location, New York State. R-1513.

DRAFTSMAN experienced on general power house work and familiar with high pressure piping. Application by letter. Salary not stated. Location, New York City. R-1520.

DESIGNING ENGINEER for general plant layout, structural steel, reinforced concrete, piping and layouts. Must be familiar with dock work and pile construction. Application by letter. Salary not stated. Location, New York City. R-1521.

ENGINEER who could handle field work for plumbing, steam fitting, ventilating, and wiring, in connection with a new hospital which is being erected in Manchuria. One year contract; rail and steamship transportation paid both ways; no other expenses allowed, except passport expenses. Application by letter. Salary not stated. Location, Dairen, Manchuria. R-1522.

INSTRUCTOR to teach General Engineering at college in Department of Civil Engineering. Desire young, energetic man with preferably some practical and teaching experience. Must be able to teach Engineering Drawing, Descriptive Geometry, Graphic Statics, Elementary Engineering, including Civil, Electrical, and Mechanical and Preparatory Physics. Application by letter. Salary not stated. Location, South. R-1526.

GRADUATE CIVIL ENGINEER with selling ability, pleasing personality, 30 to 35, good height, and who is not averse to travel, to sell asbestos products. Application by letter. Salary not stated. Headquarters, Ohio. R-1529.

SALES ENGINEER experienced in general steel plate and tank work, also boiler work. Should have former experience as estimator in this line. Application by letter. Salary not stated. Location, Missouri. R-1530.

SAFETY ENGINEER who is graduate of some recognized technical school, and who has had 5 or 6 years' experience in electrical engineering, particularly in public utility plants. Application by letter. Salary not stated. Location, New York City. R-1531.

DRAFTSMAN familiar with mill building construction and elevating and conveying machinery, such as layout of cement plants and industrial buildings and machinery, together with detailing of such equipment. Application by letter. Salary not stated. Location, Pa. R-1533.

STEAM ENGINEER, technical graduate, about 30 years of age, with five years' experience in power plant design and layout of mechanical and electrical power equipment, some operating experience desirable, to fill permanent position as assistant to steam engineer in large chemical company. Application by letter, giving detailed list of positions held in last ten years, references, and salary desired. Location, Northern Ohio. R-1534.

OPERATING OR PRODUCTION SUPERINTENDENT, with large furniture manufacturing plant that is being placed under modern methods of management. Must be a man of character, judgment, common sense, and have an understanding of manufacturing fundamentals and experience with wood working industry. R-1535.

ASSISTANT SUPERINTENDENT of construction, bank building and industrial building experience. Application by letter. Salary not stated. Location, Mass. R-1542.

YOUNG ENGINEER with 1 to 3 years' experience in water supply and valuation work. Application by letter. Salary not stated. Location, New York City. R-1547.

REINFORCED CONCRETE DESIGNER AND DRAFTSMAN for oil company, experienced on industrial building work. Application by letter. Salary not stated. Location, New York City. R-1549.

ARCHITECTURAL DRAFTSMAN for oil company, experienced on industrial building work. Application by letter. Salary not stated. Location, New York City. R-1550.

YOUNG MAN of good address, sufficiently well versed technically, to figure engine sizes when given proper conditions, and to know what conditions are necessary to have in order to determine the size and type best suited for the work. This will necessitate some knowledge of electrical apparatus, and being capable of looking up new work, in other words, to make a salesman out of him to work on a drawing account and commission. Prefer a young man, if he is not boyish in appearance and action. Application by letter. Salary not stated. Location, New York City and travelling. R-1551.

WANTED, Graduates of good technical schools to take positions with a large manufacturing company, on switching and control apparatus. Good opportunities for advancement. Openings for both recent graduates and experienced designers. Application by letter. Salary not stated. Location, Pa. R-1552.

DRAWING-ROOM CHECKER WANTED. Steady position for capable man. Application by letter stating age, experience and salary expected. Location, Northeastern Pa. R-1560.

CIVIL ENGINEER with 5 or 6 years' experience in railroad foundation work and water-works experience. Application by letter. Salary not stated. Location, New York City. R-1565.

DRAFTSMAN on general construction work, capable of designing industrial buildings, making machinery layouts, piping layouts, and ordinary machine design, and of checking drawings made by others. Application by letter. Salary not stated. Location, Va. R-1567.

CONSTRUCTION ENGINEER to act as assistant to construction engineer in charge of erection of a 240 000 k.w. power station. Application by letter. Salary not stated. Location, Pa. R-1581.

DRAFTSMAN for factory building construction and mechanical equipment of buildings, such as heating and ventilating, plumbing, etc. Only engineers with experience considered. Application in person. Salary not stated. Location, New York City. R-1586.

ASSISTANT MANAGER, for writing contracts, revising existing contracts, handling lawsuits and routine legal matters. Must have knowledge of contracts, public liability and damage laws of Pennsylvania, Ohio, Texas, and Oklahoma. Also, must have actual oil pipe line construction and management experience. R-1593.

ASSISTANT PROFESSOR of architecture with opportunity for outside work. Teaching experience essential. Application by letter. Salary not stated. Location, South. R-1594.

INSTRUCTOR in descriptive geometry for college in Middle West. Mechanical Engineer preferred. Application by letter. Salary not stated. Location, Middle West. R-1601.

ARCHITECTURAL DRAFTSMAN with all-around experience in general construction and working drawings. Application by letter. Salary not stated. Location, W. Va. R-1630.

INSTRUCTOR in machine drawing in a large Mid-Western State College; a recent graduate mechanical or electrical engineer. Application by letter. Salary not stated. Location, Kansas. R-1631.

RECENT CIVIL ENGINEER on hydrographic work in connection with the improvement of New York Harbor. Application by letter. Salary not stated. Location, N. Y. R-1632.

MEN AVAILABLE

CIVIL ENGINEER; Civil Engineer Graduate, R. P. I., Class of 1920; age 30; married. Three years with general contractor, two as Assistant Estimator and one as Field Engineer on construction of industrial shop buildings. Refers to Mr. W. A. Rowan, Vice-President, and Mr. R. M. Morris, Manager of work in Lima. CE-439.

STRUCTURAL ENGINEER, Assoc. M. Am. Soc. C. E.; Graduate C. E.; age 38; married. Twenty years' practical experience on designs, estimates, specifications, reports, supervision and construction; all classes of commercial buildings, power plants, and appurtenant structures; new plant developments from original projection to completed construction; water-front structures retaining walls, heavy and eccentric foundations. Specialization: Reinforced concrete. Major experience in New York. At present employed by large industrial concern in Middle West on extensive plant development and power plant extension now nearing completion. Desires position requiring supervisory or executive ability. Capable project engineer. In fine health; no physical defects; energetic personality. A-1 references. Correspondence solicited. CE-440.

MANAGER-ENGINEER; M. Am. Soc. C. E.; A. I. E. E.; married. Twenty years' experience in preliminary surveys, construction of hydraulic works, and complete electrical plant transmission and distribution system, operation of large and medium sized hydro-electric traction in North and South America and the Far East. Has had much foreign experience. Location

desired, preferably abroad. Desires engineer-management. Willing to investigate and report on foreign properties. Available any time. CE-441.

PROFESSOR, M. Am. Soc. C. E.; Graduate of college of liberal arts and in civil engineering, with sixteen years' engineering experience along highway, railway, and structural lines; effective speaker and writer; would consider position teaching engineering or other work of educational character. CE-442.

PROFESSOR OF CIVIL ENGINEERING, Assoc. M. Am. Soc. C. E.; age 42; College Graduate. Thirteen years in civil engineering teaching, eight years as head of department, and nine years in general practice in various lines, especially hydraulic design. Desires position as professor or dean of school or in other educational work of an engineering character. Now available. CE-443.

SANITARY ENGINEER, Jun. Am. Soc. C. E.; M. S., Univ. of Illinois; age 25; single. Experience, 5 summers on highway work. 1 year with State Health Department. Available 1 to 4 weeks. CE-444.

IRRIGATION ENGINEER, Assoc. M. Am. Soc. C. E.; Graduate; age 40; married. Eighteen years' experience in investigation, location, construction, and operation of irrigation works. Available immediately. CE-445.

MEMBER, Am. Soc. C. E.; age 46; American; Technical Graduate, 1899. Twenty-three years' engineering experience: Mining, subway construction, water supply engineering, surveys, exploration, construction, and operation; 1919 to date, Consulting Engineer, independent practice, promotional work; reports for water supply and power properties; geological reports; dams; tunnel work; foundations; municipal work; disposal of wastes. CE-446.

CONSTRUCTION OR RESIDENT ENGINEER, CIVIL, Assoc. M. Am. Soc. C. E.; technically trained. Fifteen years' planning, designing, estimating, directing, and superintending general construction; power houses; pumping stations; water-works; ore docks; furnaces; warehouses; railroad yard and terminal improvements and grade crossing elimination, viaducts, heavy foundations, and mill buildings. Has handled organizations up to 1200 men and operated elaborate plants. Desires to connect with a reputable consulting engineer or large progressive industrial concern, who want a man whose experience demands heavy responsibilities. Will go anywhere. Write or wire for further details and references. CE-447.

CIVIL ENGINEER, M. Am. Soc. C. E.; age 34; married; graduate. Fifteen years' experience on structures, industrial and power plant layout, construction and maintenance. Location, East. CE-448.

CONSTRUCTING ENGINEER, Assoc. M. Am. Soc. C. E.; Graduate, Mass. Inst. Tech. Seventeen years' experience in design and construction, including locks, dams, heavy concrete and steel work, dredging, etc. Eight years in foreign country or executive engineer in charge of large river improvement project. Will consider position in United States or abroad. CE-449.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; Michigan graduate; age 29; married. At present, Associate Professor of Civil Engineering in Southwest, teaching Structural Engineering. Eight years' experience chiefly in structural engineering and construction. Desires position as Designer on steel or reinforced concrete structures, or as Field Engineer or Superintendent on construction. Location, Central to Eastern part of United States. CE-450.

CONTRACTOR'S ENGINEER, M. Am. Soc. C. E. Twenty years' experience on heavy construction work: Subways; railroads; dams; retaining; foundations; estimating; planning; organizing; superintending. CE-451.

CIVIL ENGINEERING GRADUATE; age 24; married. Experience in engineering fieldwork, testing of materials, and as a railroad material inspector, expeditor, and representative. Desires position such as Assistant Production Manager in which previous experience may be capitalized. Salary around \$2400. CE-452.

CONSTRUCTION ENGINEER, General Superintendent and Executive with excellent record and references; Assoc. M. Am. Soc. C. E.; age 35; family. Seeks suitable connection at reasonable salary with future opportunity as ability is proven. Experience covers seventeen years field and office work with nationally known employers, principally on construction of schools, hospitals, hotel, and public buildings, also construction and operation industrial plants and shipyards, also executive sales experience. Accustomed to being held responsible for results on work at distance from home office. Energetic; hard worker; American; Christian. New York or Philadelphia interview. CE-453.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 45; married. Eight years' experience in topographic and general engineering drafting and twelve years' experience in railroad construction and maintenance, drainage, sewerage, and water supply engineering, surveys, plans, and reports. CE-454.

CIVIL AND HYDRAULIC ENGINEER, Assoc. M. Am. Soc. C. E.; B. S., 1907. C. E., 1912; age 37; married. Thirteen years' irrigation experience, including location design, construction, and operation. Three years' experience as hydrographer, measuring streams and preparing data for publication according to U. S. Geological Survey standards. Now available. CE-455.

CIVIL ENGINEER; Assoc. M. Am. Soc. C. E.; Member, Am. Ry. Eng. Assoc.; Graduate; married; age 37. Twelve years' experience on railway location, construction, and maintenance in both field and office. Desire position in similar line of work. Available at once. CE-456.

AMERICAN ENGINEER, with twenty years' wide experience in the United States and abroad, now employed in Southwest, desires change. Steam and electric railway location, construction, maintenance, and operation; power plant design and construction; steam shovel and underground mining and tunneling. CE-457.

CIVIL ENGINEER, M. Am. Soc. C. E.; Technical Graduate; married. Twenty years' varied engineering experience; ex-

tensive surveys; heavy railroad construction in earthwork and bridges; office engineer in charge of extensive valuation for large utility property; also extensive street and interurban railway experience. At present, Engineer, Maintenance of Way, with large utility property in charge of all maintenance and construction. Desires change. Will consider position with railway, industry contractor, or private business. Personal interview solicited. Best references. CE-457.

CIVIL ENGINEER; Graduate Engineer; married; age 40, with broad executive, business, and sales experience in engineering and allied lines seeks opening in which personality, aggressiveness, and ability to show results can be utilized to the fullest extent. Has lived in Metropolitan District 20 years. CE-458.

PLANT ENGINEER; Technical Graduate, with more than twenty years' experience on large industrial plants, design, construction, and maintenance; steel, wood, brick reinforced concrete buildings; design of special machinery, conveying installations, power plants, furnaces, general equipment. Eastern location desired. CE-459.

BRIDGE ENGINEER, Assoc. Am. Soc. C. E.; age 35; married. Broad experience in design and construction. Available as chief or deputy with State or county organization. CE-460.

ENGINEER, M. Am. Soc. C. E. Twenty years' general experience. Open for engagement as Engineer Counsellor or Director of research of practical applicability to edible oils, fats, soap, and allied industries. CE-461.

GRADUATE ENGINEER. Twelve years' teaching and practical experience on railway, canal, water supply, and concrete lines; desires Professorship, September, 1923. CE-462.

GRADUATE CIVIL ENGINEER. Seven years' experience in railway, valuation, water supply, fire prevention and protection, general construction, and city subdivisions. Three years' instruction in mechanics, hydraulics, public water supply, masonry, construction, plane, top, and mine surveying, and descriptive geometry. Desires position as Assistant Professor of Civil Engineering. Personal interview in Chicago, Ill., during summer. CE-463.

MEMBER, Am. Soc. C. E.; Cornell University, C. E., 1907. Experience, 17 years, design and construction in water supply and water power, such as dams, pipe lines, pumping stations, reservoirs, etc. (8 years); flood protection and other hydraulic construction, including dredging (4 years); street paving, sewerage, and highway construction (3 years). Able specification writer and skillful designer; well trained in mathematics and mechanics of materials, also hydraulics; has good executive ability and agreeable personality. Initial salary, \$3 600. Now available. CE-464.

CITY PLANNING ENGINEER, Assoc. M. Am. Soc. C. E. Twenty years' experience in all phases of city development: City planning, housing, zoning, parks, subdivisions, highways, traffic, industrial expansion, etc. Practical work also in Canada and Europe. Capable writer and speaker. At present employed in Government office. Open for any position in city planning work. CE-465.

Additions to Engineering Societies Library*

(From April 2 to June 30, 1923)

The statements made in these notices are taken from the books themselves, and this Society is not responsible for them.

SOURCE-BOOK OF RESEARCH DATA.

By New York University Bureau of Business Research. N. Y., Prentice-Hall, 1923. 70 pp., 10 x 8 in., paper. \$4.00.

This is a useful reference book for statistical departments, libraries, and business houses where current price statistics are needed. Under all the important commodities are listed the names of publications which regularly print reliable statistics of production, consumption, imports, exports, prices, etc. The tables show the unit reported, the area included, period, approximate lag of publication, and the date at which publication began. In addition to this main purpose, the book also includes a list of the chief sources, both public and private, for business data, and a suggested list of publications for a working library of current statistics.

BUSINESS CYCLES AND UNEMPLOYMENT:

Report and Recommendations of a Committee of the President's Conference on Unemployment. N. Y. & Lond., McGraw-Hill Book Co., 1923. 405 pp., charts, tab., 9 x 6 in., cloth. \$4.00.

The President's Conference on Unemployment met in Washington in September, 1921, under Secretary Hoover's chairmanship, primarily to consider relief for the millions of unemployed resulting from the business slump of 1921. During the meeting, it was recommended that an investigation be made of the whole problem of unemployment and of methods of stabilizing industry so that business depressions would be prevented, and a committee for this study was appointed. This volume contains the report of the latter committee, with its recommendations, and also the report of an investigation made, at the request of the Committee, by the National Bureau of Economic Research. The latter report discusses the relation of business cycles to unemployment, cyclical fluctuations in employment, and proposed remedies for cyclical unemployment.

FINANCIAL INCENTIVES FOR EMPLOYEES AND EXECUTIVES.

By Daniel and Meyer Bloomfield. (Modern Executive's Library.) N. Y., H. W. Wilson & Co.; Lond., Grafton & Co., 1923. 2 vol., 8 x 5 in., cloth. \$4.80.

This is a handy compilation of articles on wage systems, bonus plans, thrift plans, and other plans for rewarding employees, classified and arranged for convenient reference. Part of the material is reprinted from periodicals and reports, the remainder is original with the authors. The work covers a wide field and gives the practice of many firms.

INDUSTRIAL ORGANIZATION.

By Malcolm Keir. N. Y., Ronald Press, 1923. 421 pp., 9 x 6 in., cloth. \$2.75.

The author of this work believes that many persons find economics difficult and uninteresting because they have little conception of the complex industrial order by which the ordinary necessities of life reach the consumer or of the complete organization of the National business life. This interesting volume is intended to supply such a background of facts about the industrial organization, to present a picture in perspective of the interlocking factors of industrial life, and thus to make it possible for the reader to understand and appreciate theoretical economics.

SCIENTIFIC MANAGEMENT AND THE ENGINEERING SITUATION.

By Sir William Ashley. (Barnett House Papers, No. 7.) Lond., Humphrey-Milford, Oxford University Press, 1922. 28 pp., 9 x 6 in., paper. 35 cents.

This pamphlet contains the Sidney Ball Memorial Lecture delivered before the University of Oxford, 28 October, 1922, by the Vice-Principal of the University of Birmingham. Sir William Ashley devotes himself to criticism of scientific management, particularly as applied to engineering and the metal trades. His examination is analytical and his attention is particularly directed toward the method of remuneration of labor. He finds much to criticize unfavorably from the viewpoint of the student of economics, in present theories of management, and indicates his objections briefly in an interesting way.

* Unless otherwise specified, books in this list have been donated by the publishers.

COAST AND GEODETIC SURVEY.

By Gustavus A. Weber.

INTERSTATE COMMERCE COMMISSION.

By Joshua Bernhardt. (Institute for Government Research. Service Monographs of the U. S. Government, Nos. 16 and 18.) Balt., Johns Hopkins Press, 1923. 9 x 6 in., cloth. \$1.00 each.

These volumes are studies of the origin, activities, and organization of two important services of the Government, intended for the information of the public, executive officials, and members of Congress. Each service is described briefly, but comprehensively, so that the reader may learn why and how it originated, what it is intended to do, its facilities for its work, and the results achieved.

BUREAU OF NAVIGATION.

By Lloyd M. Short.

FEDERAL POWER COMMISSION.

By Milton Conover. (Institute for Government Research. Service Monographs of the U. S. Government, Nos. 15 and 17.) Balt., Johns Hopkins Press, 1923. 9 x 6 in., cloth. \$1.00 each.

Like the other volumes of this series of studies of the services of the United States Government, these monographs on the Bureau of Navigation and the Federal Power Commission are designed to give an account of their history, organization, and operations, for the use of the public, members of Congress, and executive officers. The plan of the books is uniform. In each case they give a history of the establishment and development of the service, a detailed description of its activities, an account of its organization and of its plant, a compilation of the laws and regulations governing its activities, financial statements showing its appropriations and expenditures, and a full bibliography of the sources of information.

FORESTS OF NEW YORK STATE.

By A. B. Recknagel. N. Y., Macmillan Co., 1923. 167 pp., illus., tab., 8 x 5 in., cloth. \$2.50.

This book deals with the economic aspects of the woodlands of New York, with the forest as a resource, the part that resource has played in the industrial development of the State, and the relationship of forest conservation to the common welfare. A bibliography is included.

SYMBOL OF SAFETY.

By Harry Chase Brearley. Garden City & N. Y., Doubleday, Page & Co., 1923. 290 pp., illus., 9 x 6 in., boards. \$2.50. (Gift of Underwriters' Laboratories, Inc.)

The author gives an interesting account of the origin, development, and activities of the Underwriters' Laboratories. Through a well-written text and many photographs, a good idea is given of the many ways in which the institution serves the manufacturer and the public.

ENGLISH AND ENGINEERING.

By Frank Aydelotte. Second Edition. N. Y. and Lond., McGraw-Hill Book Co., 1923. 415 pp., 7 x 5 in., cloth. \$2.00.

Dr. Aydelotte sets forth the purpose of his book to be: (1) To teach the student to write not by telling him how, not by doing his thinking for him, but by stimulating him to think for himself about his own problems, about his work and its place in the world; (2) To lead the engineering student to think of the occupation for which he is preparing himself not as a trade but as one of the liberal professions; (3) To lead him to see how his work of designing material conveniences for men is bound up with the spiritual advancement of the race, with the world of science, of literature, and of moral ideals. The range of the thirty-eight essays in the book embraces many kinds of men and many kinds of writing from the works of Macaulay and Ruskin to the writings of living engineers and advertisements of manufacturers.

FOUR LECTURES ON RELATIVITY AND SPACE.

By Charles Proteus Steinmetz. N. Y. and Lond., McGraw-Hill Book Co., 1923. 126 pp., diagrams, pl. in pocket, 9 x 6 in., cloth. \$2.00.

In these lectures, the extensive use of mathematics has been avoided. Dr. Steinmetz has attempted to give the layman and the engineer who is not an expert mathematician, a general knowledge and understanding of the new ideas of time, space, the laws of Nature and the characteristics of the universe which the relativity theory has deduced, and of the researches on which the theory rests.

HISTORY OF THE THEORY OF NUMBERS;

Vol. 3, Quadratic and Higher Forms. By Leonard E. Dickson. Wash., Carnegie Institution of Washington, 1923. 313 pp., 10 x 7 in., paper. \$3.25.

The third volume of this exhaustive history treats of the arithmetical theory of forms and is concerned mainly with general theories rather than with special problems and special theorems. The investigations here in question are largely those of leading experts and deal with the most advanced parts of the theory of numbers. Many of the papers are so recent that all previous reports and treatises are entirely out of date. Every effort has been made to make the list of references complete.

MATHEMATICS AND PHYSICAL SCIENCE IN CLASSICAL ANTIQUITY.

By J. L. Heiberg. (Chapters on the History of Science, Vol. 2.) Lond., Oxford University Press, 1922. 110 pp., 7 x 5 in., cloth. \$1.00. (Gift of Oxford University Press. American Branch.)

The author has given a brief general survey of the science of Classical Antiquity, laying special stress on the mathematical and physical aspects. The text is written in non-technical language and intended for those who are not specialists.

PHASE RULE AND ITS APPLICATIONS.

By Alexander Findlay. Fifth Edition. Lond. and N. Y., Longmans, Green & Co., 1923. 298 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.50.

The object of the author is to give a non-mathematical exposition of the phase rule and its applications, which will explain the principles underlying it and illustrate its use. The book is intended as an introduction to the subject for students of chemistry and also as a textbook for students of metallurgy and geology. The advances in the subject which have occurred since the appearance of the Fourth Edition, in 1914, have necessitated the complete revision and rewriting of certain sections and the addition of much new matter.

ROCKS AND THEIR ORIGINS.

By Grenville A. J. Cole. (Cambridge Manuals of Science and Literature.) Cambridge, England, University Press, 1922. 175 pp., illus., 6 x 5 in., cloth. \$1.40. (Gift of Macmillan Co., N. Y.)

This is a second edition of Professor Cole's book. Like the other volumes of the Cambridge Manuals, it is intended for the general reader rather than the specialist in geology. Readers who wish a brief account of the important rocks, of the opinions of geologists as to their origins and of the relations of rocks to the earth and to ourselves, will find the work of interest.

X-RAYS

By G. W. C. Kaye. Fourth Edition. Lond. and N. Y., Longmans, Green & Co., 1923. 320 pp., illus., diagrams, 9 x 6 in., cloth. \$5.00.

Dr. Kaye's book does not profess to be a treatise or a textbook on X-rays. It aims at giving an account of such of the present-day methods and apparatus as appear valuable or novel; it deals with the physics of a number of the main principles of radiology; and it attempts to convey a notion of the historical trend of events from the discovery down to the present. It is intended for students of physics, men of general scientific interest, and members of the medical profession. The present edition has been thoroughly revised.

AUTOMATIC SPRINKLER PROTECTION;

Supplement to Second Edition. By Gorham Dana. N. Y., John Wiley & Sons, 1923. 40 pp., illus., 8 x 5 in., paper. 50 cents.

This is a supplement to the 1919 edition of the author's book, and includes descriptions of new devices that have been introduced since that date, as well as several soon to be introduced.

COMPREHENSIVE TREATISE ON INORGANIC AND THEORETICAL CHEMISTRY, VOL. 3.

By J. W. Mellor. Lond. and N. Y., Longmans, Green & Co., 1923. 927 pp., illus., tab., 10 x 6 in., cloth. \$20.00.

The present volume includes copper, silver, gold, and the alkaline earths. Like the preceding volumes, it is noteworthy for its comprehensiveness, for the great number of numerical data, and for the many extensive bibliographies that are given. It fills the need for a modern comprehensive account in the English language.

PRINCIPLES OF CHEMICAL ENGINEERING.

By William H. Walker, W. K. Lewis and W. H. McAdams. N. Y. and Lond., McGraw-Hill Book Co., 1923. 637 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$5.00.

The authors have tried to present those principles of science on which chemical engineering operations are based and then to develop methods for applying these principles to the solution of such problems as present themselves in practice. Basic operations common to all industries have been selected, and the treatment is mathematically quantitative as well

as qualitatively descriptive. The book falls into five groups. The first reviews the principles of stoichiometry. The second considers the phenomena accompanying the flow of heat and the flow of fluids, and the laws governing these operations. The third group of chapters treats of fuels and their combustion; the fourth, processes of crushing, grinding, mechanical separation, and filtration. Group five discusses processes depending on vaporization.

APPLIED MECHANICS.

By Alfred P. Poorman. Second Edition. N. Y. and Lond., McGraw-Hill Book Co., 1923. 293 pp., diagrams, 9 x 6 in., cloth. \$2.75.

This is a textbook for undergraduate courses in engineering schools. The author departs from the usual procedure by making extended use of the graphic method of solution and by presenting a large number of illustrative examples which have been solved in detail to show the relation between the principle which has been developed and the problems to which it applies. Several changes have been made in the new edition, and the section on statics has been expanded.

DICTIONARY OF APPLIED PHYSICS, VOL. 4;

Light, Sound, Radiology. By Richard Glazebrook. Lond., Macmillan & Co., 1923. 914 pp., illus., diagrams, tab. 9 x 6 in., cloth. 63s.

This volume of the Dictionary follows the plan of its predecessors, that is, the author defines briefly the minor terms in its field and refers the user for further information to the extended articles by experts on general topics. These general articles are well-rounded summaries of present knowledge on the principal topics, provided with adequate references to the literature. In this volume, the subjects discussed are sound, light, and radiology. Special articles are included on crystallography, diffraction gratings, the eye, glass, goniometry, gratules, infra-red transmission, interferometers, the kinematograph, lenses, light, luminous compounds, the microscope, navigational instruments, ophthalmic apparatus, optical calculations, optical glass, periscopes, photographic apparatus, photometry, the pianoforte, polarimetry, polarized light, projection apparatus, the quantum theory, radiation, radioactivity, radiology, radium, range-finders, shutters, sound, sound ranging, spectrophotometry, spectroscopes, spherometry, surveying instruments, telescopes, and wave-length measurements, as well as on other subjects.

ELEMENTS OF APPLIED PHYSICS.

By Alpheus W. Smith. N. Y. and Lond., McGraw-Hill Book Co., 1923. 483 pp., illus., diagrams, 9 x 6 in., cloth. \$3.00

Prepared for students who are primarily interested in the practical applications of physics, this book has been written with their training and habits of thought in mind and includes those topics that they can assimilate thoroughly. A large number of illustrations of the applications of physics to engineering and everyday life are given in an effort to stimulate the student to recognize the universality of physical laws and to find in them the explanation of everyday experiences.

HÜTTE, DES INGENIEURS TASCHENBUCH:

Vol. 1, Edition 24. By Akademischer Verein Hütte, Berlin. Berlin, Wilhelm Ernst & Sohn, 1923. 1308 pp., diagrams, tab., 7 x 5 in., cloth. \$2.00.

After so many editions, the plan of such a reference book has necessarily become fixed. This new edition consequently shows no marked change in general arrangement, but only improvement in its details. The present volume has been thoroughly revised to bring it abreast of modern practice. The section on the Mechanics of Rigid Bodies has been entirely rewritten; that on the Mechanics of Fluids has been enlarged. Improvements have been made in the section on Heat, especially in the chapter on Combustion, and in the section on the Strength of Materials. The chapters on Lubricants and on Belts and Belt Conveyors have been rewritten. The section on Machine Elements has been rewritten and enlarged. Nearly 250 pages in all have been added to the book. A change has been made in the method of selling the book, so that individual volumes can now be bought separately.

MANUAL OF PHYSICAL MEASUREMENTS.

By Anthony Zeleny and H. A. Erikson. Fifth Edition. N. Y. and Lond., McGraw-Hill Book Co., 1923. 288 pp., illus., diagrams, 8 x 5 in., cloth. \$2.25.

An outline of the laboratory experiments used to supplement lectures and recitations in the courses in general physics given at the University of Minnesota is given herein.

MOLECULAR PHYSICS.

By James Arnold Crowther. (Text-books of Chemical Research and Engineering.) Third Edition. Phila., P. Blakiston's Son & Co., 1923. 189 pp., illus., diagrams, tab., 8 x 5 in., cloth. \$2.50.

The three years that have elapsed since the second edition of this book have been marked by great changes in scientific thought. The nuclear theory of the atom has been placed on an incontrovertible basis and knowledge of the structure and constitution of the atom has been thereby immensely increased. In order to reflect this new outlook as faithfully as possible, the whole text of the book has been thoroughly revised, and rewritten where necessary. A new chapter on the theory of Quanta and its extension to atomic phenomena has been added. The new edition, like its predecessors, is a coherent, intelligible account of the present state of the electrical theory of matter.

PRACTICAL HEAT.

By Terrell Croft. N. Y. and Lond., McGraw-Hill Book Co., 1923. 713 pp., illus., tab., 8 x 6 in., cloth. \$5.00.

"Practical Heat" is intended to present the subject of heat and its practical applications in a manner that may be followed by persons with limited mathematical attainments. The text begins with the consideration of the fundamental concepts of physics, force, pressure, work, energy, and power, followed by a discussion of heat, its source, and its relation to matter. This is followed by the measurement and transformations of heat, where the first and second laws of thermodynamics and the fundamental equation of heat-transference are explained. The effects of heat, expansion, heat phenomena of gases, etc., are next considered. Succeeding chapters discuss gas and vapor cycles, fuels, combustion, power plants, heating, refrigeration, and measuring instruments, attention being directed to the demonstration of the manner in which theoretical principles are applied in engineering practice.

PROFESSOR COKER'S APPARATUS FOR DETERMINING THE DISTRIBUTION

Of Stress in Structural and Machine Members. Made by Adam Hilger, 75a Camden Road, Lond.

This pamphlet is a trade publication describing the apparatus devised by Professor E. G. Coker for using polarized light to determine the distribution of stress in parts of machines and structures by observations on models made of transparent materials, a method that makes it possible to measure the stress distribution under any system of loads, in any body that can be represented by a plate model stressed in its own plane. As the measurements obtained on models with this apparatus have been found to represent accurately the stresses in metals, the experimental results can be immediately applied to engineering materials. A bibliography is included.

WAVE LENGTH TABLES FOR SPECTRUM ANALYSIS.

By F. Twyman. Lond., Adam Hilger, 1923. 106 pp., tab., 9 x 6 in., cloth. 7s, 6d.

This book is a collection of wave length tables intended for use in the laboratory and containing only matter essential for this purpose. It is of a convenient size and weight. It includes standard wave lengths from 2375 to 8495 Å., the persistent and sensitive lines of most of the elements arranged under the names of the elements, and the most persistent and sensitive lines re-arranged in order of wave lengths. There is also a list of wave lengths useful in the determination of stellar radial velocities. The values are from the most competent authorities, and the source of each is carefully indicated.

AUFGABENSAMMLUNG ZUR FESTIGKEITSLAHRE.

By R. Haren. Ber. and Lpz., Walter de Gruyter & Co., 1923. 116 pp., diagrams, tab., 6 x 4 in., boards. 25 cents.

In a volume of convenient pocket size and of small cost, the author has collected sixty-six problems relating to the strength of materials, which he presents with complete solutions. The problems are those that occur frequently in machine design.

ELASTICITY AND STRENGTH OF MATERIALS

Used in Engineering Construction: Section 2, Theory of Simple Flexure. By C. A. P. Turner. Minneapolis, Minn., The Author, 1923. 108 pp., diagrams, 9 x 6 in., cloth. \$5.00.

The second section of Mr. Turner's work deals with the theory of flexure. The development of the exact theory of flexure will prove interesting to the profession, the author believes, as will also the simplified formulas. These are developed in such a manner that they can be remembered and used without reference to a handbook. The discussion of the stress analysis of beams shows clearly the relation of shear distortion to shear resistance, a relation frequently not understood.

DIE DAMPFTURBINEN * * *

Vol. 1; Theorie der Dampfturbinen. By Const. Zietemann. Ber. and Lpz., Vereinigung wissenschaftlicher verleger, Walter de Gruyter & Co., 1923. 150 pp., diagrams, 6 x 4 in., boards. 25 cents.

This volume is the first part of a three-volume work on steam turbines, which is intended to give not only the theory and thermal calculations, but also practical information on design and construction, and an account of present practice. The work is designed as a concise introduction for students and practicing engineers. Vol. 1 is concerned chiefly with theory. The fundamental laws of heat, the properties of steam, and its flow through orifices are explained. The utilization of the energy of steam in turbines, including methods of reducing speed, is next considered, and this is followed by a discussion of losses in the turbine, efficiency, and power. The final section treats of steam, heat, and fuel consumption.

DIESEL AND OIL ENGINE HANDBOOK.

By Julius Rosbloom. Los Angeles, Technical Publishing Co., 1923. 376 pp., illus., diagrams, tab., 7 x 5 in., boards. \$3.00.

The first five chapters of this handbook explain the principles of the Diesel engine, describe the pumps, governors, and other auxiliary machinery, and give directions for testing. Chapter VI offers detailed descriptions of a number of commercial types, and Chapter VII discusses Diesel electric ship propulsion. The book is intended as a reference work for practical men.

DIE LEISTUNGSGEHEBERUNG VON GROSSDAMPFKESELN.

By Friedrich Münzinger. Berlin, Julius Springer, 1922. 163 pp., illus., diagrams, tab., 9 x 6 in., paper. \$1.00.

An active experience in planning and operating large boiler plants during the last ten years has led the author to certain opinions concerning methods for increasing the output and economy of large steam generators and to an appreciation of various difficulties that have had to be overcome. The results of his practical work are set forth in the present volume, which discusses the ways by which large boiler plants may attain greater economy. Special attention is paid to the influence of accessory apparatus. The concluding chapter considers possible future developments.

THE DYNAMO, ITS THEORY, DESIGN, AND MANUFACTURE; VOL. 2.

By C. C. Hawkins. Sixth Edition. N. Y. & Lond., Isaac Pitman & Sons, 1923. 322 pp., illus., diagrams, 9 x 6 in., cloth. 15s.

In the opening chapter of this volume, which completes the study of continuous-current dynamos, a detailed analysis of the effect of armature reaction on the flux-curve under load is given both for non-commutating-pole and commutating-pole machines. Succeeding chapters discuss commutation and sparking at the brushes, the heating of dynamos, dynamo design, working, and management. Two designs are worked out in full to illustrate the application of the numerous formulas which have been given in the text.

E. M. F. ELECTRICAL YEAR BOOK.

1923 Edition. Chic., Electrical Trade Publishing Co., 1923. 1502 pp., illus., 12 x 9 in., cloth. \$10.00.

This Yearbook combines in one alphabet the features of an encyclopedia, a dictionary, and a trade directory, covering the electrical industry in the United States and Canada. Data are given about the growth and status of the applications of electricity, associations, schools and colleges, libraries, laboratories, etc. Biographies of prominent men, electrical codes, patent information, and definitions of words are included. About 3 000 articles used by electrical workers are described and their makers named. Trade names are also given. This edition has been thoroughly revised. Many new topics and cross-references have been added, bringing the book up to date.

ELECTRIC CRANES AND HAULING MACHINES.

By F. E. Chilton. (Pitman's Technical Primers.) Lond. & N. Y., Isaac Pitman & Sons, 1923. 114 pp., illus., diagrams, 6 x 4 in., cloth. 85 cents.

The object of this book is to describe a number of the more generally used types of electric cranes and hauling machines, together with a few of the accessory specialties used with them, and to explain their methods of operation. The subject is treated in a simple, descriptive manner, on broad general lines. Only the most modern and commonly used appliances are included.

ELECTRIC MOTORS, VOL. 1;

Chiefly Concerning Direct Current. By Henry M. Hobart. Third Edition. Lond. & N. Y., Isaac Pitman & Sons, 1923. 412 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.50.

This is an advanced treatise by an experienced designer, in which matters of theoretical and practical interest are discussed. The present edition has been completely revised and rewritten. Although this volume is mostly about direct-current motors, the author has made no attempt to separate alternating and direct-current questions sharply, and has included certain important matters in the second volume.

ELECTRIC MOTORS, VOL. 2;

Polyphase Current. By Henry M. Hobart. Third Edition. Lond. & N. Y., Isaac Pitman & Sons, 1923. 384 pp., diagrams, 9 x 6 in., cloth. \$4.50.

This volume, the concluding one, continues the account contained in Vol. 1 without interruption, giving special consideration to polyphase current questions. The treatise is intended for the designer rather than for the student and to show the state of the art at the present time.

ELEKTRISCHE DURCHBRUCHFELDSTARKE VON GASEN.

By W. O. Schumann. Berlin, Julius Springer, 1923. 246 pp., diagrams, tab., 10 x 7 in., paper. \$1.40.

The results of the author's experimental investigations and the theories to which these have led, are presented herein, together with a summary of the work of previous investigators. The book is divided into three sections. The first summarizes, briefly, but completely, all published measurements of discharge potentials and breakdown fields. Section 2 contains

an introduction on the kinetic theory of gases, followed by an account of J. S. Townsend's work on the phenomena of spontaneous discharge in gases, and closes with an attempt to picture the state of the conducting bodies in gases in strong fields which is necessary for sparking. In the third section, the considerations of Section 2 are applied to atmospheric air, the dependence of the electric strength on the geometric arrangement of the electrodes being especially studied.

ELEKTRISCHE SCHALTVORGÄNGE.

By Reinhold Rüdenberg. Berlin, Julius Springer, 1923. 504 pp., illus., diagrams, 9 x 6 in., boards. \$4.00.

The author discusses the changes of a temporary nature which may occur in electric circuits and which are of interest in the operation of high power electric systems. He treats both the phenomena produced intentionally in the transition to a new operating state and those of an accidental character which are accompanied by short circuit and over-voltage phenomena. The work is based on a series of lectures delivered by the author, the Chief Electrician of the Siemens-Schuckert Works, before the Electrical Engineering Society of Berlin, but the lectures have been expanded to cover the results of all recent investigations. A bibliography is included.

ELEKTROTECHNIK, VOL. 4;

Die Erzeugung und Verteilung der Elektrischen Energie. By Immanuel Hermann. Berlin und Lpz., Walter de Gruyter & Co., 1923. 138 pp., illus., diagrams, 6 x 4 in., boards. 25 cents.

This book is one of a series of small volumes giving an outline of electrical engineering in greatly condensed form. This volume is concerned with the generation and distribution of electricity and discusses in five chapters, power plants, methods of distribution, switch apparatus, distributing networks, and the cost of electric power.

INDUSTRIAL ELECTRIC HEATING.

By J. W. Beauchamp. (Pitman's Technical Primers.) Lond. & N. Y., Isaac Pitman & Sons, 1923. 118 pp., illus., diagrams, tab., 6 x 4 in., cloth. 85 cents.

The primary object of this book is to bring together, for the benefit of the engineer and student, information on the applications of electric heating, particularly to other purposes than furnace and welding work. The book is intended to suggest possible applications and thus to stimulate further inquiry by manufacturers and others who could use electric heating, by calling attention to the variety of uses which it now has.

JAHRBUCH DER ELEKTROTECHNIK, 1921.

By Karl Stricker. München, R. Oldenbourg, 1923. 237 pp., 10 x 7 in., paper. \$1.00.

The Jahrbuch der Electrotechnik is an annual report on the more important results and occurrences in electricity, prepared by specialists from a review of the book and periodical literature. This volume corresponds to the calendar year 1921. The book is classified into four main classes: Electro-mechanics, Electro-chemistry, Communication and Signaling, and Measurements and Scientific Research, which are further divided into specific subjects, each of which is surveyed by a specialist. About 140 periodicals, chiefly German, have been reviewed.

LIGHTING CIRCUITS AND SWITCHES.

By Terrell Croft. N. Y. & Lond., McGraw-Hill Book Co., 1923. 472 pp., illus., diagrams, 8 x 6 in., cloth. \$3.00.

Prepared for use as a practical reference book, this work discusses those circuits and connections, and their applications, which are needed at times by every one concerned with electric lighting. Although the simpler circuits have been included, the chief emphasis is placed on the more complicated circuits and control methods. The material relates almost wholly to electric lighting circuits and switches for interior applications, operating on low-potential systems. Most of it concerns 110-220 volt, two-wire, or three-wire systems. One chapter is devoted to theater lighting circuits. The text is concise, the information being chiefly set forth by diagrams and drawings.

MODERN ELECTRICAL THEORY; SUPPLEMENTARY CHAPTER 16, RELATIVITY.

By Norman R. Campbell. (Cambridge Physical Series.) Cambridge, England, University Press, 1923. 116 pp., 9 x 6 in., cloth. 7s 6d. (Gift of Macmillan Co., N. Y.)

Dr. Campbell has added another book to the immense literature of relativity for two reasons, the first of which is to complete his treatise on electrical theory, which cannot be considered complete without some description of this important branch of physics. The second reason is that he has found the average physicist still ignorant of Einstein's work and not very interested in it. He thinks this ignorance is because certain features in the theory present greater difficulty to them than to others, and as he believes he has discovered their stumbling block, he has written this book to help them surmount their difficulty.

PRINTING TELEGRAPH SYSTEMS AND MECHANISMS.

By H. H. Harrison. (Manuals of Telegraph and Telephone Engineering.) Lond. and N. Y., Longmans, Green & Co., 1923. 435 pp., diagrams, 9 x 6 in., cloth. \$7.00.

Intended as a reference book for designers of telegraph machinery and as a textbook for those engaged in telegraphy, this book is a comprehensive study of the principles and mechanisms involved in printing telegraphs and a history of the development of the art.

STROME UND SPANNUNGEN IN STARKSTROMNETZEN

Als Grundlage Elektrischer Leitungsberechnungen. By Josef Herzog u. Clarence Feldman. Berlin u. Leipzig, Walter de Gruyter & Co., 1923. 110 pp., diagrams, tab., 6 x 4 in., boards. 25 cents.

A concise presentation of the theoretical considerations in the design of distributing systems for electric power, the little volume is intended as a *vade-mecum* for the engineer, not as a textbook for the student. The methods for calculating distributing networks are set forth explicitly, in spite of the briefness of the text.

MOTOR BOATS.

By F. Strickland. (Common Commodities and Industries.) Lond., and N. Y., Isaac Pitman & Sons, (1923). 116 pp., illus., 7 x 5 in., cloth. \$1.00.

This book contains a concise review, in non-technical language, of the development and construction of motor-boats, of the principles of the marine motor, of its advantages over the steam engine, and of its possible future development.

MOTOR FUELS, THEIR PRODUCTION AND TECHNOLOGY.

By Eugene H. Leslie. N. Y., Chemical Catalog Co., 1923. 681 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$7.00.

This is an encyclopedic book on motor fuels. Dr. Leslie has not confined himself to the technology of the subject, but has included material of an economic nature and has made the contents of his book miscellaneous in some measure, so that it is of interest to the general reader as well as the student and the refinery engineer. The Table of Contents gives an idea of the scope of the treatise and shows that this is limited largely to the production of fuels. A special effort is made to present accurately the fundamental principles of physics, thermodynamics, and chemistry underlying the operations used in producing motor fuels, and also to review the research work in several fields where present knowledge is still unsatisfactory. Numerous bibliographies and tables are given, which add to the value of the book for reference use. Contents: The Motor Fuel Problem; The Composition of Petroleum; General Outline of the Manufacture of Petroleum Products; Fractional Distillation; Fluid Flow and Heat-Transfer; Refinery Equipment for Distilling Petroleum; Towers, Deplegmaters, Steam-Stills, Condensers, Heat-Exchangers, Coolers, and Other Refinery Equipment; The Thermal Reactions of Hydrocarbons; Cracking Processes; The Chemical Treatment of Gasoline; Natural-Gas Gasoline; Alcohol, a Motor Fuel of the Future; Composite and Miscellaneous Motor Fuels; Gasoline Specifications and Quality; Distillation in the Laboratory; Methods of Analysis; Useful Physical Data and Tables.

KALENDER UND HANDBUCH

Für Betriebsleitung und Praktischen Maschinenbau, 1923. By Hugo Güldner. Leipzig, H. A. Ludwig Degener, 1923. 2 vol., diagrams, tab., 6 x 4 in., limp cloth. \$1.00.

This is a pocket-book designed to meet the wants of engineers engaged in management and operation, or in the manufacture of machinery, rather than in design. Issued in two parts, the first contains the greater part of the text and discusses the materials of machines, machine parts, prime movers, power transmission, and auxiliary machinery. Volume 2 treats of management and also contains mathematical tables. The work is published in inexpensive form and is revised every year.

MECHANICAL TESTING, VOL. 2;

Testing of Prime Movers, Machines, Structures and Engineering Apparatus. By R. G. Batson and J. H. Hyde. (Directly-Useful Technical Series.) N. Y., E. P. Dutton & Co., 1923. 446 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$10.00.

This book, the concluding volume of this treatise on testing, deals with methods and apparatus for testing prime movers, machines, and structures. The text is confined to descriptions of mechanical methods of testing, except in certain important cases where hydraulic, electrical, or optical means are used to supplement mechanical means. Types of testing apparatus for the standard tests, suited for use both in the laboratory and the factory, are also described. Prominence is given to details of importance in the success of test apparatus. The tests described include dynamometry, gear testing, springs, testing of lubricants and bearings, tests of vibration and of balance, testing of concrete slabs and beams, columns and struts, vibration in masonry structures, tests on cutting tools and with aircraft models.

MECHANISMS OF MACHINE TOOLS.

By Thomas R. Shaw. (Oxford Technical Publications.) Lond., Henry Froude and Hodder & Stoughton, 1923. 351 pp., illus., diagrams, 11 x 9 in., cloth. \$14.00. (Gift of Oxford University Press, American Branch.)

In every engineering work there are certain essential elements on which success or failure depends, and the designer must understand what these elements are and have a thorough knowledge of the functions which they must perform. In this work, Mr. Shaw endeavors to place on record many of the essential principles which have a place in machine tool design. The book opens with an account of the evolution, types, and functions of machine tools, in which several examples of early design are shown, accompanied by later designs showing the changes. The materials are then discussed briefly. The remainder of the book discusses many of the more important mechanisms: Gearing, frames, bearing, power transmission, reverse motions, controlling, tripping, indexing, and locking devices. These, as far as possible, have been grouped as separate units, distinct from any machine, so that the reader may analyze the different methods in use for a single operation. The volume is unusually attractive in makeup.

ROBERT FULTON AND THE SUBMARINE.

By William B. Parsons. N. Y., Columbia University Press, 1922. 154 pp., illus., port., 10 x 7 in., cloth. \$4.00.

The author has given an interesting record of Fulton's submarine boats, of his experiments in France and England, and of his unsuccessful attempts to interest the Governments of those countries in his invention. Much of the material is here published for the first time and is taken from recently discovered descriptions written by Fulton himself.

VORLESUNGEN UBER INGENIEUR-WISSENSCHAFTEN, T. 2.

Eisenbruckenbau, Bd. 3. By Georg Christoph Mehrtens. Lpz., Wilhelm Engelmann, 1923. 445 pp., illus., diagrams, tab., 10 x 7 in., paper. \$5.10.

This, the concluding volume of Professor Mehrtens' lectures on iron bridges, is divided into four sections. Section 1 treats of girder systems and their calculation. Section 2 discusses the structural details of truss bridges of various kinds, while Section 3 is on the details of suspension bridges. The final section describes the fabrication and erection of bridges, and includes accounts of the erection of the Manhattan, Queensboro, and Hell Gate Bridges. The volume is fully illustrated.

FOUNDATIONS, ABUTMENTS AND FOOTINGS.

By George A. Hool and W. S. Kinne. N. Y., and Lond., McGraw-Hill Book Co., 1923. 414 pp., illus., diagrams, 9 x 6 in., cloth. \$4.00.

STRUCTURAL MEMBERS AND CONNECTIONS.

By George A. Hool and W. S. Kinne. N. Y., and Lond., McGraw-Hill Book Co., 1923. 611 pp., diagrams, tab., 9 x 6 in., cloth. \$6.00.

These two volumes belong to a series of handbooks designed to provide the engineer and student with a reference work covering thoroughly the design and construction of the principal kinds and types of modern civil engineering structures. An effort has been made to give such a complete treatment of the elementary theory that the books may also be used for home study. Each volume is independent and may be used without the help of the other volumes. The volume on Foundations treats of soil investigation, excavation, foundations, spread footings, underpinning, foundations requiring special considerations, bridge piers and abutments, and legal provisions regarding foundations and footings. The volume on Structural Members discusses the general theory, design of steel and cast-iron members, splices and connections for steel members, design of wooden members, splices and connections for wooden members, and the design of reinforced concrete members.

HIGHWAYS AND HIGHWAY TRANSPORTATION.

By George R. Chatburn. N. Y., Thomas G. Crowell Co., 1923. 472 pp., illus., maps, 8 x 6 in., cloth. \$3.00.

The primary objects of the author have been to sketch briefly and simply the developments of the transportation systems of the United States, to indicate their importance and mutual relations, to present some practical methods used in operating highway transport, and to suggest some betterments. The book is intended for those desiring a general account of the origin, evolution, and present status of highway transportation, and is written in an interesting style suitable for general reading. The development of transportation is sketched from coastal and natural waterways, from the pack and trail, through the canal era, the toll road, and the railroad, to the advent of the modern highway. Succeeding chapters discuss automotive transportation, highway planning and financing, effects of good highways on social life, accidents, and highway esthetics.

HISTORY OF THE JAMES RIVER AND KANAWHA COMPANY.

By Wayland F. Dunaway. (Studies in History, Economics and Public Law.) N. Y., Columbia University, 1922. 251 pp., 9 x 6 in., paper. \$2.75. (Gift of Longmans, Green & Co., Sales Agent).

The James River and Kanawha Company was the most important of the internal improvements fostered by the State of Virginia prior to the Civil War, and its history forms an important chapter in the story of the development of American transportation routes. In this monograph, Dr. Dunaway gives the history of the project, from its origin in 1785 to its final abandonment in 1880, when its property was sold to the Richmond and Alleghany Railroad Company.

RAILROAD ELECTRIFICATION AND THE ELECTRIC LOCOMOTIVE.

By Arthur J. Manson. N. Y., Simmons-Boardman Publishing Co., 1923. 332 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

This book was written to give railway officials and operating men a knowledge of the design, construction, and operation of electric locomotives and of their application to different kinds of railroad service. The text opens with a statement of theoretical principles, which is followed by descriptions of the various motors and other elements of the electric locomotive, illustrated by examples from practice. Examples of the solution of problems encountered in electrification are given. An Appendix contains a brief history of the electrification of American steam railroads and a number of useful tables covering electrification projects throughout the world.

RAILROADS, RATES, SERVICE, MANAGEMENT.

By Homer B. Vanderblue and Kenneth F. Burgess. N. Y., Macmillan Co., 1923. 488 pp., 9 x 6 in., cloth. \$4.50.

The authors of this book, the Professor of Business Economics at Harvard University and the General Attorney of the Chicago, Burlington and Quincy Railroad Company, have written it to give information concerning the elaborate system of Governmental machinery by which railroad regulation is accomplished in the United States. The book is intended for those with an interest in the methods of regulation, for students of railroad practice, and for railroad officers. It is neither a law book nor a text on economics, but is rather a volume presenting the observations that have resulted from experience in teaching the subject and in active practice before Courts.

STREETS, ROADS, AND PAVEMENTS.

By H. Gilbert Whyatt. (Pitman's Technical Primers.) Lond., and N. Y., Isaac Pitman & Sons, 1923. 140 pp., illus., 6 x 4 in., cloth. 85 cents.

Opening with a reference to the evolution of roads, this book deals with modern macadam roads, tarring, rolling, road wear, pavements, and concrete roads. Short chapters follow, dealing with road planning, road openings, footways, watering, cleaning, and Governmental control. The book is intended as a guide for young engineers and for local authorities engaged in road construction.

DIE WASSERSTRASSEN, HÄFEN UND LANDESKULTURARBEITEN.

By E. Mattern. Lpz., Wilhelm Engelmann, 1922. 780 pp., illus., maps, tab., 10 x 7 in., cloth. \$6.27.

A study of the utilization of water including the two fields of transportation and agriculture, and discussing both the economic and political questions involved, the book opens with a brief historical review, which is followed by a discussion of political questions. The regulations set down in the Versailles Treaty and the new German Constitution are discussed at some length, as regards their influence on German water-supply regulation. The introduction ends with the problems and objects of regulation. The three succeeding sections, on inland waterways, ports and ocean routes, and agriculture, are the principal parts of the book. In these divisions, the subjects are discussed from a broad viewpoint, intended to show how economic, political, and technical elements enter into problems of the utilization of the water resources of a country, and the manner in which these elements are united in the solutions.

FLÜSSIGKEITSBEHÄLTER, ROHREN, KANÄLE, VOL. 5;

Handbuch für Eisenbetonbau. By F. Emperger. Third Edition. Wilhelm Ernst & Sohn, 1923. 409 pp., illus., diagrams, tab., 11 x 7 in., paper. \$3.24.

Vol. 5 of Emperger's well-known handbook has reached the third edition. It contains two chapters, one on tanks for liquids, the other on pipes, open conduits, aqueducts, and canal bridges. The first of these chapters has been entirely rewritten by Dr. Löser, Dr. Grün, and Dr. Lewe. It now includes the experience resulting from the extended use of concrete tanks for many purposes since the appearance of the second edition in 1910. The composition of water-proof concrete, water-proofing compounds and paints, and the chemical effects of various liquids are discussed in detail. Similar detailed attention is given to the statics of tank construction, where an attempt is made to set forth modern methods of calculation in an easily understood form and to illustrate them by numerous examples. The chapter on Pipes and Conduits has been thoroughly revised by F. Lorey, in the light of recent experience and modern structures.

SEWERAGE;

The Designing, Constructing, and Maintaining of Sewerage Systems and Sewage Treatment Plants. By A. Prescott Folwell. Ninth Edition. N. Y.,

John Wiley & Sons; Lond., Chapman & Hall, 1922. 477 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

Intended as a reference book for city engineers and as a textbook for students, the present edition has been revised to include new developments since the publication of the Eighth Edition, while at the same time the space devoted to methods that are disappearing has been reduced. The volume includes a list of all the plants for treating sewage in the United States.

AUTOMOBILE CHASSIS.

By Ben G. Elliott. N. Y. and Lond., McGraw-Hill Book Co., 1923. 233 pp., illus., 8 x 5 in., cloth. \$2.50.

In this textbook for students of automotive engineering, the author treats all parts of the gasoline automobile, except the body, the power plant, and its immediate accessories. Particular stress is put on fundamental principles, which are illustrated, as far as possible, by examples from modern practice, so that the work is useful for reference as well as for instruction.

AUTOMOBILE SHOP PRACTICE.

By Edward K. Hammond and F. D. Jones. N. Y., Industrial Press, 1923. 306 pp., illus., 9 x 6 in., cloth. \$3.00.

This treatise takes up the manufacture of automobiles as carried on in this country, and describes the standard and special tools, machines, and processes used in many plants. The parts selected for description are those which require unusual tools and processes to obtain accurate work and large output. The authors believe the book will be of interest to those engaged in similar classes of work in other lines.

AUTOMOTIVE REPAIR:

Vol. 3, For Battery Service Men; Vol. 4, For Tire Service Men. By J. C. Wright. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. Vol. 3, 387 pp.; Vol. 4, 305 pp.; illus., tab., 9 x 6 in., cloth. \$3.00.

These two volumes complete this extensive work on the repair of automobiles by presenting methods for repairing tires and batteries. They follow the plan of the earlier volumes in giving for each job, first, an outline of the necessary operations, then the materials, tools, and parts required, and, finally, a detailed description of the method. The reasons for each operation are also given. The directions are clear and practical, and cover almost every emergency that can arise.

MOEDEBECK-TASCHENBUCH FÜR FLUGTECHNIKER UND LUFTSCHIFFER.

By R. Süring und K. Wegener. Fourth Edition. Berlin, M. Krayn, 1923. 920 pp., illus., diagrams, tab., 7 x 5 in., boards. \$3.60.

The chapter headings show the scope of this volume, which is evidently intended to serve as a concise account of the present state of aerial navigation, suitable for ready reference. Each of its seventeen chapters has been prepared by an authority and is liberally illustrated with diagrams and photographs. Many have short bibliographies and a collection of tables is appended to the book. Contents: Die physikalischen Eigenschaften der Gase, von R. Emden; Die Physik der Atmosphäre, von A. Berson; Praktische Wetterkunde, von Kurt Wegener; Aerologie, von Alfred Wegener; Aerodynamik, von C. Weselsberger und A. Betz; Photographie und Photogrammetrie, von E. Ewald; Grundlagen der Navigation für Luftfahrzeuge, von K. Bassus; Ortsbestimmungen; Motoren und Luftschrauben, von Otto Schwager; Mechanik des Flugzeuges, von E. Everling; Flugzeugbau, von H. G. Bader und A. R. Weyl; Die Führung des Flugzeuges, von Kurt Wegener; Der Motorlose Flug, von W. Klemperer; Luftschiffbau; Die Führung des Luftschiffes, von K. Breithaupt; Der Kugelballon, von R. Süring; Tabellen.

THÉORIE DES SURFACES PORTANTES; LA THEORIE DE PRANDTL.

By Maurice Roy. Paris, Gauthier-Villars et Cie., 1922. 131 pp., diagrams, 8 x 5 in., paper. 12 fr.

The author has attempted to present in a simple manner the basis of the theory of supporting surfaces elaborated in Germany by L. Prandtl in the aerodynamic laboratory at Göttingen, and to present the results obtained up to the present time. Part I sets forth the fundamental idea of the theory and includes a study of two interesting problems raised by Joukowski's theory. The second part describes the applications of a simplified form of the theory, presented by Professor Prandtl before the Göttingen Scientific Society, in the design of wing surfaces and propellers.

APPLIED PERSONNEL PROCEDURE.

By Frank E. Weakly. N. Y. and Lond., McGraw-Hill Book Co., 1923. 192 pp., 8 x 6 in., cloth. \$2.00.

This book is not intended to be an exhaustive treatise on personnel administration, but rather to describe in concrete fashion a number of phases of personnel management with which the work of the author has made him familiar. He writes from long experience as a worker, as head of a personnel department, and as a general executive. The methods that he describes will fit both large and small organizations and have been tested by use.

HANDBOOK OF BUSINESS CORRESPONDENCE.

By S. Roland Hall. N. Y. and Lond., McGraw-Hill Book Co., 1923. 1048 pp., illus., 8 x 5 in., fabrikoid. \$5.00.

This volume is a small encyclopedia for advertisers and for business men generally, by an experienced manager of sales, in which the author describes the organization of a mail sales division, methods of caring for dictation, and processes for printing and reproducing letters. Gives advice on the composition of letters for various purposes, selling, collecting, adjusting, etc., or to various kinds of people, and illustrates this advice by numerous models.

AMERICAN PETROLEUM REFINING.

By H. S. Bell. N. Y., D. Van Nostrand. 1923. 456 pp., illus., diagrams, 9 x 6 in., cloth. \$5.00.

In this, the first American book exclusively devoted to refining the author discusses the manufacturing process, the arrangement of refineries, the apparatus and treatment used, the storage and transportation of oil, etc. The book is intended to give the fundamental information needed by those about to erect refineries or by those engaged in the industry who wish a picture of it as a whole.

EL ARTE DE LOS METALES.

By Alvaro Alonzo Barba. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 288 pp., illus., 8 x 6 in., cloth. \$3.50.

This book, written in Spanish by Alvaro Alonzo Barba, Curate of San Bernardino Parish, Potosi, Bolivia, is undoubtedly the earliest published work on American metallurgy. Originally presented as a report to the Crown Representative at Sucre, it was reviewed by the Mayor and representatives of the Amalgamators' Guild of Potosi, in 1637 and recommended to the King of Spain for publication. It was published at Madrid in 1640. A poor English translation of the first two of its five books was made in 1669 by Edward Montagu, Earl of Sandwich, but the present publication is the first complete, accurate rendering in the English language. Book 1 summarizes the geological knowledge of Barba's time. Books 2 to 5 deal with metallurgical practice in a region already famous for its production of gold and silver. Barba describes the methods of treating the ores and of refining the bullion and illustrates the furnaces used. He also describes the equipment and methods in use for assaying, as well as a method for amalgamating silver ores discovered by him in 1690, which was rediscovered many years later on the Comstock lode as the "washer process". His book will be welcome to all who are interested in the history of metallurgy or of early Spanish industrial achievements in South America.

CHEMICAL TECHNOLOGY AND ANALYSIS OF OILS, FATS AND WAXES, VOL. 3.

By J. Lewkowitsch. Sixth Edition. Lond., Macmillan & Co., 1923. 508 pp., illus., tab., 9 x 6 in., cloth. 36 s. (Gift of Macmillan Co., N. Y.)

This, the final volume of the new edition of this well-known treatise, deals with the technology of manufactured oils, fats, and waxes, and the technical and commercial examination of them. It includes the industries for refining oils and fats and their commercial applications as foods, illuminants, paints and lubricants; the industries based on chemical changes, such as hydro-generation, polymerization, boiling and oxidation, and the industries based on saponification, the candle, fatty acid, soap, and glycerine industries. A chapter is devoted to the technology of waste oils and their commercial products.

INK.

By C. Ainsworth Mitchell. (Pitman's Common Commodities and Industries.) Lond. and N. Y., Isaac Pitman & Sons, [1923]. 128 pp., illus., 7 x 5 in., cloth. \$1.00.

In this book, the author has given an account of the origin and development of inks, with a non-technical description of the manner in which they are made and of the characteristics of good preparations of each kind of ink. The text is intended for users and persons generally interested, rather than for manufacturers.

METALS AND METALLIC COMPOUNDS.

By Uliek R. Evans. N. Y., Longmans, Green & Co.; Lond., Edward Arnold & Co., 1923. 4 vol., illus., diagrams, tab., 9 x 6 in., cloth. Vol. 1, \$7.00; Vol. 2, \$6.00. [Vol. 3-4 ready in July.]

The fruitful research work carried out during recent years in metallography, crystallography, electro-chemistry, colloid chemistry, and geo-chemistry enables one to approach the study of metals in an altogether new spirit. It is now possible to suggest reasons for phenomena which formerly appeared inexplicable, and to detect regularities where once the facts seemed chaotic; it is time, therefore, Mr. Evans believes, for a treatise of a new kind. In his book, an attempt is made to correlate cause and effect and to introduce such theoretical views as will serve to connect the known facts in an ordered and elegant sequence. The book is intended for the advanced student of inorganic and metallurgical chemistry and for those engaged in research. The author hopes it will also be helpful to the industrial chemist, and that certain parts, such as those dealing with work-hardening, recrystallization, corrosion, and the effect of impurities on metals, will be useful to the engineer. Of the four volumes, the first is of a generalized character. It begins with an introduction in which is condensed the necessary knowledge of the elementary principles of general chemistry.

physics, and geology. The body of the volume is divided into two parts, the Study of the Metallic State (Metallography) and the Study of the Ionic State (Electro-chemistry). The three remaining volumes deal with the individual metals. The space devoted to each metal is divided into three sections, the first of which deals with the metal and its compounds from the academic point of view, discussing the pure chemistry of the metal, its compounds, and methods of analysis. The second section deals with the terrestrial occurrence of the metal and discusses the origin and probable mode of formation of the important ores. The third section is of a technical nature. The processes of concentration and smelting are described and are followed by a consideration of the practical uses of the element and of compounds containing it. Author and subject indexes complete the volumes, each of which is provided with numerous references to the literature.

ORE MAGMAS; A SERIES OF ESSAYS ON ORE DEPOSITION.

By Josiah Edward Spurr. N. Y. and Lond., McGraw-Hill Book Co., 1923. 2 vol., illus., 9 x 6 in., cloth. \$8.00 per set.

The preface states that these volumes differ from most books on their subject in being essentially a record of the author's personal studies and opinions on the origin of ore deposits. Only here and there has the writer deviated from his personal experience to dwell on a few instances of the work of others. These observations and conclusions, the result of thirty years of study, set forth Mr. Spurr's opinions concerning fundamental principles. They treat of the origin of ore magmas, the mode of injection of mineral veins, igneous intrusion, igneous surge, telescoped ore deposits, time relations between rock intrusion and ore intrusion, epochs of ore deposition, metallographic provinces, the main lines of descent for ore deposits, precipitation of ore magmas, the origin of fissure veins, and other important matters.

ORGANIC CHEMISTRY, VOL. 3; HETEROCYCLIC COMPOUNDS.

By Victor von Richter. Phila., P. Blakiston's Son & Co., 1923. 326 pp., 9 x 6 in., cloth. \$6.00.

This is the final volume of the English version of the Eleventh Edition of the work, covering heterocyclic compounds, and is a comprehensive treatise, distinguished by the great number of compounds described.

SURFACE TENSION AND SURFACE ENERGY

And Their Influence on Chemical Phenomena. By R. S. Willows and E. Hatschek. (Textbooks of Chemical Research and Engineering.) Third Edition, Phila., P. Blakiston's Son & Co., 1923. 136 pp., illus., 8 x 5 in., cloth. \$2.00.

The purpose of this book is to give the student of chemistry an adequate idea of the fundamental laws of surface tension and surface energy while avoiding the purely mathematical exercises that occupy so much of the space devoted to the subject in textbooks of physics, and then to deal at some length with the relations between surface energy and such constants and phenomena as are likely to be of interest to the chemist and biologist. The book is intended for students of chemistry, particularly the chemistry of colloids.

SYNTHETIC COLOURING MATTERS, VAT COLOURS.

By Jocelyn F. Thorpe and C. K. Ingold. (Monographs on Industrial Chemistry.) Lond. & N. Y., Longmans, Green & Co., 1923. 491 pp., 9 x 6 in., cloth. \$5.50.

An extensive work on these important substances, which, like the other volumes of the series in which it appears, is intended to present scientific knowledge of vat dyes, of their constitutions and reactions, and of the ways in which this knowledge is applied technically. It does not attempt to cover the whole ground of the technology of vat dyeing, nor is it concerned with the technical minutiae of manufacture, except in so far as these are necessary to elucidate some point of principle. Part 1 discusses indigoid vat dyes, and Part 2, anthraquinone. Parts 3 and 4 are much briefer and treat of the miscellaneous vat dyes and of the preparation of vat dyes and intermediates.

SYNTHETIC RESINS AND THEIR PLASTICS.

By Carleton Ellis. N. Y., Chemical Catalog Co., Book Dept., 1923. 514 pp., illus., 9 x 6 in., cloth. \$6.00.

This book contains a comprehensive summary of data on a great variety of synthetic products of a resinous nature or an amorphous character which may lend themselves to substitution where natural resins are now used. The first part of the book discusses the chemistry of these substances, the methods of preparing them, and their applications. This is followed by chapters on the preparation and properties of plastic moulding compositions, equipment for moulding them, and methods of moulding. The book is of interest to makers of varnish, insulating compositions, and similar wares.

TEXTBOOK OF ORE DRESSING.

By S. J. Truscott. Lond., Macmillan & Co., 1923. 680 pp., illus., diagrams, 9 x 6 in., cloth. 40s. (Gift of Macmillan Co., N. Y.)

This book was written primarily to go with the course on Mineral Dressing at the Royal School of Mines, London. It is an attractive volume, illustrated by many half-tones and line drawings, flow sheets, and diagrams, taken from actual installations. It differs from previous works by giving much space to flotation processes.

CONSOLIDATED TEXTILE CATALOGS, 1923.

Compiled by Textile World. N. Y., Bragdon, Lord & Nagle Co., 1923. 531 pp., illus., 12 x 9 in., cloth.

This catalog is intended to provide firms engaged in the textile industry with a conveniently arranged collection of catalog information, similar to that available for other lines. The book describes a large proportion of the textile machinery built in this country, the material being arranged under such heads as cotton machinery, wool and worsted machinery, knitting machinery, machinery for dyeing, drying and bleaching, power plant equipment mill supplies, building construction, etc. An index of firm names and an index of products are provided, together with a catalog of books on textiles.

COSGROVE'S HANDBOOK OF WOOD-WORKING MACHINERY.

Owosso, Mich., Cosgrove Co., 1923. Loose leaf, 11 x 8 in., fabrikoid. \$15.00.

Buyers of wood-working machinery will find in this handbook descriptions of the machines and equipment manufactured in this country, prepared in uniform manner and classified so that the different machines may be easily compared. The descriptions explain the principles of each machine, tell the sizes made and their capacities, state the power and floor space which they require, and give the names of the manufacturers. An index and a directory of manufacturers are included. The book is issued in loose-leaf binding, to permit the insertion of new matter.

SPECIAL STEELS.

By Thomas H. Burnham. (Pitman's Technical Primers.) Lond., Isaac Pitman & Sons, 1923. 194 pp., illus., diagrams, tab., 6 x 4 in., cloth. \$1.70.

Although the literature of special steels is rich in treatises dealing with some particular branch of the subject and much information is also to be found in the transactions of various societies and in technical journals, the author of this book feels that there is need for some work from which the student or user of special steels can obtain a concise technical survey of the nature and scope of this branch of metallurgy. This need he endeavors to meet by the present brief review of current knowledge and practice. After a general introduction and description of the constitution and manufacture of special steels, the important steels are described, special consideration being given to their working, heat treatment, and uses. Appendices give bibliographic references for those desirous of further information.

DIE WALZWERKE, EINRICHTUNG UND BETRIEB.

By A. Holverscheid. Berlin and Lpz., Walter de Gruyter & Co., 1923. 144 pp., illus., diagrams, 6 x 4 in., boards. 25 cents.

This little work describes modern rolling-mill machinery and practice. Mills for structural iron, sheets, wire, and pipe are described, as well as a number of mills for special purposes. An appendix on heating furnaces is included. The treatment is condensed, but covers the essentials.

WORKING OF STEEL.

By Fred H. Colvin and K. A. Juthe. Second Edition. N. Y. and Lond., McGraw-Hill Book Co., 1922. 245 pp., illus., tab., 9 x 6 in., cloth. \$3.00.

The authors have collected information, from the best available sources, on the most approved methods for working the steels now in use, and have added the results of their own experience, the result being a useful manual for those engaged in heat-treating steel. This edition has been revised and partly rewritten.

GAS- UND WASSERVERSORGUNG DER GEBAUDE.

By Wilhelm Schwaab. Berlin u. Lpz., Vereinigung Wissenschaftlicher Verleger, Walter de Gruyter & Co., 1923. 121 pp., illus., 6 x 4 in., boards. 25 cents.

The purpose of this volume is to give those interested in gas and water installations in buildings a concise birdseye view of the subject. The first division of the work treats of gas, describing its manufacture, the method of distributing it, and of installing the piping in the building, and its use for lighting, heating, etc. The second section discusses the water supply in a similar manner.

HEIZUNG UND LUFTUNG, VOL. 1;

Das Wesen und die Berechnung der Heizungs und Lüftungsanlagen. By Johannes Körting. Berlin und Lpz., Vereinigung wissenschaftlicher verleger, Walter de Gruyter & Co., 1922. 139 pp., diagrams, 6 x 4 in., boards. 25 cents.

A concise guide for students of heating and ventilation, this book deals with theoretical principles, rather than practical details.

INDUSTRIAL FURNACES, VOL. 1.

By Willibald Trink. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 319 pp., diagrams, 9 x 6 in., cloth. \$4.50.

This volume deals with the fundamental principles that underlie all industrial heating operations and furnace design, and with those applications which are independent of the kind of fuel or energy supply. The principal subjects discussed are the heating capacity and fuel economy of furnaces, heat-saving appliances in combustion furnaces, furnace strength and durability, and the movement of gases in furnaces. A succeeding volume will treat of specific applications of furnaces. The book is based on articles published in the *Blast Furnace and Steel Plant* and the *American Drop Forger*, revised and expanded.

MODERN PLUMBING ILLUSTRATED.

By R. M. Starbuck. Fourth Edition. N. Y., Norman W. Henley Publishing Co., 1922. 407 pp., diagrams, 10 x 7 in., cloth. \$5.00.

This book covers all the work that plumbers are usually called upon to do, and describes current approved practice. The text is subordinate to the numerous plates, which illustrate clearly how the fixtures and piping should be installed.

VENTILATION; REPORT OF THE NEW YORK STATE COMMISSION ON VENTILATION.

N. Y., E. P. Dutton & Co., 1923. 620 pp., illus., diagrams, tab., 10 x 7 in., cloth. \$15.00.

The complete report of this Committee appears in a volume of more than 600 pages, amply illustrated and with full details of methods of investigation and their results. The report is divided into two parts. Part 1 is a study of the physiological significance of the various factors in ventilation, with special reference to the effects of air conditions on health, comfort, and efficiency. It sets forth the results of elaborate experiments conducted at the College of the City of New York during 1913 and succeeding years, as well as the conclusions derived from them. Part 2 is a study of the practical results achieved by the use of various methods of schoolroom ventilation. It presents the results of field tests, carried on in New York City and Springfield, Mass., during 1915-17, with five different methods of schoolroom ventilation.

STUDIES ON BUILDING HEIGHT LIMITATIONS IN LARGE CITIES

With Special Reference to Conditions in Chicago; Proceedings of an Investigation Conducted under the Auspices of the Zoning Committee of the Chicago Real Estate Board. Chic., Chicago Real Estate Board Library, 1923. 299 pp., illus., diagrams, 9 x 6 in., cloth. \$2.60.

This volume embodies the results of what is said to be the most complete investigation of the question of building heights which has yet been undertaken. Data were collected from other cities, both at home and abroad, and the views and arguments of those favoring and those opposing the limitation of heights are set forth impartially, together with the conclusions of the Committee.

TUCKER COUNTY.

By David B. Reger. Morgantown, W. Va., West Virginia Geological Survey, 1923. 542 pp., illus., maps in portfolio, 9 x 6 in., cloth. \$3.00.

The author has embodied herein a detailed report on the physiography, geology, mineral resources, and paleontology of Tucker County. Coal and limestone are the important minerals. The report is accompanied by two large maps, one of which shows the topography, the other the general and economic geology of the county.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, <i>Proceedings</i> (Y.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers, <i>Journal</i> (M.)	New York
A. R. E. A.....	American Railway Engineering Association, <i>Proceedings</i> (Y.)	Chicago
A. S. T. M.....	American Society for Testing Materials, <i>Proceedings</i> (Y.)	Philadelphia
Am. Soc. C. E.....	American Society of Civil Engineers, <i>Proceedings</i> (M.)	New York
Am. Soc. Mun. Impvts..	American Society for Municipal Improvements, <i>Proceedings</i> (Y.)	New York
Am. W. W. Assoc.....	American Waterworks Association, <i>Journal</i> (Bi-M.)	Baltimore
Am. Wood Pres. Assoc..	American Wood Preservers Association, <i>Proceedings</i> (Y.)	Chicago
Ann. P. et C.....	Annales des Ponts et Chaussées (Bi-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (Bi-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, <i>Journal</i> (M.)	Boston
Can. Engr.....	Canadian Engineer (W.)	Toronto
Cem. Eng.....	Cement and Engineering News (M.)	Chicago
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (W.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, <i>Journal</i> (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engrs. Soc. Pa.....	Engineers' Society of Pennsylvania, <i>Journal</i> (M.)	Harrisburg
Engrs. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, <i>Journal</i> (M.)	Pittsburgh
Engr.	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs..	Institution of Municipal and County Engineers, <i>Journal</i> (W.)	London
Int. Ry. Cong. Assoc....	International Railway Congress Association, <i>Bulletin</i> (M.)	Brussels
Land. Arch.....	Landscape Architecture (M.)	Harrisburg
Mech. Eng.....	Mechanical Engineering (M.) <i>Journal of the American Society of Mechanical Engineers</i>	New York
Mil. Engr.....	Military Engineer (M.)	Washington
Min. & Metal.....	Mining and Metallurgy (M.) <i>American Institute of Mining Engineers</i>	New York
Mun. & Co. Eng.....	Municipal and County Engineering (M.)	Indianapolis
N. E. W. W. Assoc.....	New England Water Works Association, <i>Journal</i> (M.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, <i>Proceedings</i> (M.)	Brooklyn
Oest. Ing. Arch. Ver....	Oesterreichischer Ingenieur und Architekten Verein, <i>Zeitschrift</i> (W.)	Vienna
Power	Power (W.)	New York
Rev. Gen.....	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	New York
Ry. Eng. & Main.....	Railway Engineering and Maintenance (M.)	Chicago
Ry. Rev.....	Railway Review (W.)	Chicago
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Zurich
Sci. Am.....	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, <i>Mémoires et Comptes Rendus</i> (Q.)	Paris
Ver. deu. Ing.....	Verein deutscher Ingenieure, <i>Zeitschrift</i> (W.)	Berlin
West. Ry. Club.....	Western Railway Club, <i>Proceedings</i> (M.)	Chicago
West. Soc. Engrs.....	Western Society of Engineers, <i>Journal</i> (M.)	Chicago
Zeit. Bau.....	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (Semi-Weekly)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences.

a. Processes of Calculation

2. Graphical and Nomographical Processes

- The Load Curve of Construction Equipment.* Homer V. Knouse. Am. W. W. Assoc. Mar. '23.
 Theoretical Frequency Curves and Their Application to Engineering Problems.* H. Alden Foster. Am. Soc. C. E. May, '23.
 Graphical Trim Calculation and a Trim Nomogram.* E. V. Telfer. (Paper read before Inst. Naval Architects.) Eng. May 4, '23.
 Neues Verfahren zur genauen Massenermittlung bei Erdarbeiten.* (New Method for Exact Determination of Quantities in Earthwork.) Hermann Treiber. Z. d. Bauver. Feb. 28, '23.
 Dreieckschaubilder für graphische Berechnungen.* (Triangular Diagrams for Graphic Calculation.) G. Neumann. Ver. deu. Ing. Mar. 10, '23.

3. Stresses and Strains

- The Determination of Torsional Stresses in a Shaft of Any Cross Section.* Leonard Bairdston and Alfred John Sutton Pippard. Inst. C. E. 1921-22, Pt. 2.
 Why Do Some Structures Stand? A Partial Solution. R. Fleming. Can. Engr. Apr. 24, '23.

B. Applied Mechanics

a. Mechanics of Solids

2. Elastic Solids

- Initial Failure and Automatic Relief of Stress. David C. Coyle. Eng. N. R. Apr. 5, '23.
 Plate-Girder Design and Detailing—Notes from Practice.* Robins Fleming. Eng. N. R. June 14, '23.

4. Riveted Systems

- Die Kraftfelder an Knotenblechen eiserner Fachwerke.* (The Fields of Force in Gussets of Steel Framing.) Th. Wyss. Ver. deu. Ing. Apr. 21, '23.
 Versuche über die Wirkung verschiedenartiger Nietverbindungen doppeltelliger Druckstäbe.* (Tests of the Action of Various Riveted Joints of Double Compression Members.) H. Kayser. Ver. deu. Ing. Apr. 28, '23.

5. Homogeneous Inelastic Solids

- Zur Frage der Knickformel für den unelastischen Bereich.* (On the Question of the Breaking Formula for the Inelastic Range.) Petermann. Z. d. Bauver. Feb. 28, '23.

6. Heterogeneous Solids (Reinforced Materials)

- Concrete Pipe; Plain and Reinforced.* Joseph S. Lambie. Engrs.' Soc. W. Pa. Jan., '23.
 Torsional Strength of Rectangular Concrete Sections.* C. E. Young and others. (From Bulletin of University of Toronto.) Eng. & Contr. May 23, '23.
 Reinforced Concrete Beam Design Simplified.* T. D. Mylrea. Can. Engr. May 29, '23.
 L'utilisation d'une règle à calcul pour l'étude des projets de béton armé.* (Use of a Slide Rule for the Study of Reinforced Concrete Plans.) René Deguillaume. Gen. Civ. Apr. 14, '23.

7. Pulverulent Masses (Earth Pressure)

- Lateral Earth Pressure: The Accurate Experimental Determination of the Lateral Earth Pressure. Together with a Resume of Previous Experiments.* Discussion. J. C. Meem, E. G. Haines, George Paaswell, D. B. Steinman, M. J. McPike, Edward Godfrey, G. M. Braune, and Thomas H. Wiggin. Am. Soc. C. E. May, '23.
 Lateral Earth Pressure: The Accurate Experimental Determination of the Lateral Earth Pressure. Together With a Resume of Previous Experiments.* Jacob Feld. Am. Soc. C. E. Apr., '23.

b. Hydraulics

1. Processes of Measurement

- Der elektrische Wassergeschwindigkeitsmesser System D B F.* (The D. B. F. System Electric Water Velocity Meter.) Schw. Bauz. Mar. 24, '23.

2. Physical Hydraulics (Orifices, Pipes, Channels, Waves)

- Etude sur les Ondes Stables dans les Canaux et Cours d'Eau.* (Study on Stable Waves in Canals and Water Courses.) M. L. Bonneau. Ann. P. et C. Nov.-Dec., '22.
 Der Treffpunkt des Wasserstrahls eines Ueberfalls mit dem Boden.* (The Point of Impact on the Stream of a Waterfall with the Bottom.) A. Deischa. Schw. Bauz. Apr. 7, '23.

- Das Gesetz für den Durchflusswiderstand in Rohrleitungen kreisförmigen Querschnittes. (The Law for the Resistance to Flow in Pipes of Circular Cross-Section.) H. Lang. Gesund. Ing. Apr. 28, '23.

3. Industrial Hydraulics

- The Water Power Problem: A Symposium. Discussion. J. P. Jollyman. Am. Soc. C. E. Mar., '23.
 The Amoskeag Manufacturing Company Hydro-Electric Development.* Arthur T. Safford. Bost. Soc. C. E. Mar., '23.
 The Water Power Problem. A Symposium. Discussion. F. P. Williams. Am. Soc. C. E. Apr., '23.
 Availability and Economics of Hydro-Electric Power for New York.* (From paper read before N. Y. Sections of Am. Soc. C. E., Am. Inst. Min. E., Am. Soc. Mech. E., and Am. Inst. Elec. E.) Power. Apr. 3, '23.
 Preliminary Developments on a Hydro-Electric Project.* H. K. Fox. Eng. N. R. Apr. 19, '23.
 The Water Power Problem: A Symposium. Discussion. G. B. Herington and Gerard H. Matthes. Am. Soc. C. E. May, '23.

- Water Power Potentialities of the Pacific Coast.* Frederick Hall Fowler. Am. Soc. C. E. May, '23.
- Water Power. Charles W. Kellogg. Bost. Soc. C. E. June, '23.
- Hydro-Electric Developments in Ontario.* F. A. Gaby. Can. Engr. June 19, '23.
- La Manipulation Pneumatique des Liquides Suivant les Procédés "Maulclère".* (Pneumatic Handling of Liquids by the "Maulclère" Processes.) M. P. Maulclère. Soc. Ing. Civ. Fr. Oct.-Dec., '22.
- Le Rôle de l'Etat dans l'Aménagement des Chutes d'Eau. La Loi du 16 Octobre 1919 et le Cahier des Charges Type. (The Part of the Government in the Management of Water Power.) G. Tochon. Gen. Civ. Mar. 17, '23.
- L'étude expérimentale du marteau pneumatique.* (Experimental Study of the Pneumatic Hammer.) Ch. Dantin. Gen. Civ. May 12, '23.
- Zur Theorie der Zentrifugalpumpen.* (On the Theory of the Centrifugal Pump.) W. van der Smissen. Ver. deu. Ing. Jan. 6, '23.
- Das Walchensee- und Bayernwerk.* (The Walchensee and Bavarian Works.) E. Mattern. Ver. deu. Ing. Serial beginning Jan. 6, '23.
- Der Ausbau der Mittleren Isar.* (Development of the Central Isar.) E. Mattern. Ver. deu. Ing. Serial beginning March 3, '23.
- Zur tschecho-slowakischen Wasserkraftsteuer. (On the Czecho-Slovakian Water-Power Tax.) Rolf Lamberg. Oest. Ing. Arch. Ver. Mar. 23, '23.
- Das bestehende Wiestalwerk der Städtischen Elektrizitätswerke Salzbürg und das im Bau befindliche Strubklammwerk.* (The Existing Wiestal Plant of the Salzbürg Municipal Electric Plant and the Strubklamm Plant Under Construction.) Josef Mayrhofer. Oest. Ing. Arch. Ver. Mar. 23, '23.
- Die Art der Bewegung und Wirkung des Wassers in Turbinen und Kreiselumpen.* (The Nature of the Motion and Action of Water in Turbines and Centrifugal Pumps.) Dankewerts. Z. d. Bauver. Mar. 28, '23.
- Wasserkraftanlage Fully in den Berner Alpen.* (The Fully Hydraulic Plant in the Bernese Alps.) Garbe. Z. d. Bauver. Mar. 28, '23.
- Die Einheitsgrossen der Francis-Turbinen unter wechselnden Bedingungen.* (The Unit Sizes of the Francis Turbine Under Varying Conditions.) George Karrass. Ver. deu. Ing. Apr. 7, '23.
- Beitrag zur rotierenden Bewegung starrer und flüssiger Körper und deren Anwendbarkeit auf die Turbinentheorie.* (Contribution on the Rotary Motions of Rigid and Fluid Bodies and Their Application to the Theory of Turbines.) Meyer-Frenkel. Oest. Ing. Arch. Ver. Apr. 20, '23.
- Die Wasserkraftanlagen in Bayern.* (Water Power Plants in Bavaria.) E. Mattern. Z. d. Bauver. Serial beginning May 2, '23.
- Versuche an der Kaplan-Turbine.* (Tests of the Kaplan Turbine.) Ver. deu. Ing. May 5, '23.
- Die Maschinenanlagen des Murgwerkes.* (The Mechanical Plant of the Murg Works.) E. Treiber. Ver. deu. Ing. May 5, '23.
- Turbinen und Regler des Kraftwerkes Ritom der Schweizerischen Bundesbahnen.* (Turbines and Regulator of the Ritom Power Plant of the Swiss Federal Railroads.) Victor Gelpke. Ver. deu. Ing. May 5, '23.
- Die Wasserkräfte der Alz.* (The Water Power of the Alz.) E. Mattern. Ver. deu. Ing. May 12, '23.
- Ausbau grosser Wasserkräfte in Oberitalien.* (Development of Large Water Powers in Upper Italy.) Schw. Bauz. May 12, '23.
- Das Kraftwerk Ritom der S. B. B.* (The Ritom Power Plant of the Swiss Federal Railroads.) H. Eggenberger. Schw. Bauz. Serial beginning May 19, '23.

c. Pneumatics

2. Physical Pneumatics

- The Measurement of Air Flow.* R. O. King. Eng. Serial beginning Apr. 13, '23.
- Effect of Pulsations on Flow of Gases.* Horace Judd and Donal B. Pheley. Mech. Eng. Apr., '23.

3. Industrial Pneumatics

- Floating Pneumatic Grain-Handling Plant.* Eng. May 18, '23.
- Versuchsergebnisse an einem Turbogebälde, Bauart Escher, Wyss & Cie.* (Experimental Results on a Turbo-Blower, Escher, Wyss & Co. Construction.) P. Ostertag. Schw. Bauz. Serial beginning Apr. 7, '23.
- Berechnung mehrstufiger Kompressoren.* (Calculation of Multiple-Stage Compressors.) M. Selliger. Ver. deu. Ing. May 12, '23.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

- Factory Made Concrete Units are Economical.* E. C. Alexander. Cem. Eng. May, '23.
- End Bearing Strength of Wood on Surfaces Inclined to Fibre.* H. H. Schofield and E. N. Burrows. Cornell C. E. May, '23.
- Tests Show Differences Between Clay and Concrete Brick.* Eng. N. R. May 31, '23.
- Reinforcing Value of Gunite Encasing for Steel Beams. Can. Engr. Mar. 27, '23.
- Inundation Methods for Measurements of Sand.* G. A. Smith and W. A. Slater. Can. Engr. Apr. 3, '23.
- Developments in the Use of Local Materials. Vernon M. Peirce. (Paper read before Am. Road Builders' Assoc.) Can. Engr. Apr. 10, '23.
- Timber Treating Plant Operates Different Processes.* Eng. N. R. May 3, '23.
- Stone Screenings as Fine Aggregate for Concrete.* Duff A. Abrams. (Paper read before National Crushed Stone Assoc.) Eng. & Contr. Apr. 25, '23.
- Stone Screenings as Fine Aggregate for Concrete.* Duff A. Abrams. Paper read before National Crushed Stone Assoc.) Can. Engr. June 12, '23.

Untersuchungen über Erhärtung vom Zement nach Einwirkung niedriger Temperaturen. (Researches upon the Hardening of Cement with Reference to the Effect of Low Temperatures.) Z. d. Bauver. Apr. 25, '23.
Das Verhalten von Beton und Mörtel im Moor. (The Behavior of Concrete and Mortar in Swamps.) Hasch. Oest. Ing. Arch. Ver. May 18, '23.

b. Metals

The Study of Steels for Engineering Structures.* George K. Burgess. Am. Soc. C. E. Mar., '23.
Loi des déformations permanentes à la traction et à la compression.* (Law of Permanent Deformations by Tension and by Compression.) Malaval. Gen. Civ. Mar. 31, '23.
Un Nouvelle alliage d'aluminium: l'alpax.* (A New Aluminium Alloy: Alpax.) Leon Guillet. Gen. Civ. Serial beginning May 5, '23.
Beanspruchungshöhe, Korngrösse und Temperatur bei Ermüdungserscheinungen.* (Amount of Load, Size of Granule and Temperature in Fatigue Phenomena.) W. Müller and Hugo Leber. Ver. deu. Ing. Apr. 14, '23.
Neuere Konstruktionsgrundsätze und Anwendung der Knutson-Doppelwellbleche.* (New Principles of Construction and Uses of the Knutson Doubly Corrugated Sheet Iron.) M. Foerster. Ver. deu. Ing. Apr. 21, '23.
Der umgekehrte Hartguss und ähnliche Erscheinungen.* (Reserved Chilled Casting and Similar Phenomena.) E. Dübl. Schw. Bauz. Serial beginning May 12, '23.

c. Preservation and Use of Materials. Painting, Waterproofing

Corrosion of Ferrous Metals.* Robert Abbott Hadfield. Inst. C. E. 1921-22, Pt. 2.

e. Earthwork. Cubage. Excavating Machinery

Neues Verfahren zur genauen Massenermittlung bei Erdarbeiten.* (New Method for Exact Determination of Quantities in Earthwork.) Hermann Treiber. Z. d. Bauver. Feb. 28, '23.

f. Rock Excavation, Mining, Rock Removal

Submarine Rock Drilling Records and Unit Costs.* Emile Low. Eng. N. R. Apr. 26, '23.
Abstracts of Institute Papers.* Min. & Metal. May, '23.
Abstracts of Institute Papers.* Min. & Metal. June, '23.
Der Bau einer Tonnage in der Hödlkrube (bei Voitsberg).*) (Construction of an Inclined Shaft in the Hödl Mine near Voitsberg). Sigmund Schuschny. Oest. Arch. Ing. Ver. Apr. 6, '23.
Ein neuer Geschwindigkeitsmesser für Fördermaschinen.* (A New Speed Meter for Conveyors.) Wilhelm Heilmann. Ver. deu. Ing. Apr. 28, '23.

g. Execution of Works. Specifications

1. Of Masonry
Some Comparisons of Concrete with Clay Brick Masonry.* A. J. R. Curtis. Cem. Eng. June, '23.
Notice relative aux travaux de construction du mur de soutènement de la rue Ernest Allard, à Bruxelles.* (Notice Upon the Construction of the Retaining Wall of the Rue Ernest Allard, at Brussels.) Van Hoey. Assoc. Ing. Gand, Pt. 1, '23.
Normung der Mauerziegel und zulässige Beanspruchung von Ziegelmauerwerk. (Standardization of Building Brick, and Permissible Requirements for Brick Wall Construction.) Lapprich. Oest. Ing. Arch. Ver. May 4, '23.
2. Of Concrete
Portland Cement Stucco and the Surface Finish of Concrete Block.* Franc J. Gardner. (Paper read before Wisconsin Concrete Products Manufacturers Convention.) Cem. Eng. Apr., '23.
Terrazzo Floor for Industrial Shoe Factory Building. H. S. Wright. Eng. N. R. Apr. 12, '23.
Concreting Plant Designed for Cold Weather Work.* Richard P. Wallis. Eng. N. R. June 7, '23.
4. Of Metal
The Design of Structural Supports for Turbo-Generators. Discussion. George A. Orrok. Am. Soc. C. E. Mar., '23.
The Design of Structural Supports for Turbo-Generators. Discussion. R. von Fabrice. Am. Soc. C. E. Apr. '23.
5. Of Reinforced Concrete
Shrinkage and Temperature Changes in Reinforced Concrete.* E. H. Harder. Eng. N. R. Apr. 12, '23.
Reinforced Concrete Columns.* Discussions. Edward Godfrey, E. S. Martin, George Paaswell, Jacob Feld, and A. W. Buel. Am. Soc. C. E. Apr., '23.
Reinforced Concrete Columns. Discussion. H. V. Spurr and Austin H. Reeves. Am. Soc. C. E. May, '23.
Reinforced Concrete Elevated Water Tanks.* S. R. Ross. Can. Engr. May 1, '23.
Le stade athlétique de Wembley Park pres de Londres.* (The Athletic Stadium at Wembley Park near London.) Gen. Civ. May 19, '23.
Martin- und Elektrostahlwerk aus Eisenbeton.* (Open-Hearth and Electric Steel Works of Reinforced Concrete.) Julius Maxg. Ver. deu. Ing. Apr. 28, '23.

h. Foundations—Bridge-Piers and Abutments

Spread-Base Caissons in Boston Bank Foundation.* Eng. N. R. Mar. 29, '23.
Wrapping Concrete Bridge Abutments in an Asphalt Blanket. J. F. Seiler. Mun. & Co. Eng. Apr., '23.
Using Divers and Compressed Air in Underpinning.* Eng. N. R. Apr. 5, '23.
L. & N. Designs Bridge to Resist Gulf Hurricanes.* Ry. Age Apr. 21, '23.

The Design of Structural Supports for Turbo-Generators. Discussion. D. A. Allee and Edward H. Cameron. Am. Soc. C. E. May, '23.
Casting and Sinking Cylinders for Ballantyne Pier. William Small. Eng. N. R. May 24, '23.

Use Pneumatic Process for Twelve Bridge Piers.* Ry. Age. May 26, '23.
Untersuchungen über Fundamentschwingungen.* (Investigations on Vibrations of Foundations.) Ernst Schmidt. Ver. deu. Ing. Jan. 13, '23.

j. Piles and Pile-Driving

Mollusk Borer Attacks Concrete Pile Protection.* Ry. Rev. Apr. 21, '23.
The All-Devouring Marine Borer.* Sci. Am. June, '23.
A Record Job of Pile-Driving.* Sci. Am. June, '23.
Unique Pile Driver Used in Trestle Reconstruction Job.* C. M. Kurtz. Ry. Eng. & Main. June, '23.

k. Tunnels and Tunneling-Shields

Elastic Stresses in the Rock Surrounding Pressure Tunnels.* Charles P. Dunn. Am. Soc. C. E. Apr., '23.
Effects of Grouting and Gravel Packing Around Tunnel.* W. E. Thompson. Eng. N. R. Apr. 5, '23.
Precast Concrete Units Used for Relining Railroad Tunnels.* Eng. N. R. Apr. 12, '23.
Methods and Progress in Constructing the 13-mile Florence Lake Tunnel in California.* D. H. Redinger. May 3, '23.
La Machine à Creuser les Tunnels, Système Whitaker.* (The Whiteaker System Tunnel Excavating Machine.) Gen. Civ. Mar. 3, '23.
Ueber Gebirgsdruck.* (On Mountain Pressure.) Rob. Maillart. Schw. Bauz. Apr. 7, '23.
Wasserstollenbau im druckhaften Gebirge.* (Construction of Water Tunnel Conduits in Soil under Pressure.) Franz Lepnik. Oest. Ing. Arch. Ver. May 18, '23.

D. Highways

a. Location

The Standardisation of Arterial Roads.* Maurice J. Hellier. Inst. Mun. & Co. Engrs. Mar. 27, '23.
Economic Study of Highway Design and Location. O. L. Kipp. (Abstract of paper read before Minnesota Federation of Architectural and Eng. Societies.) Eng. N. R. Apr. 19, '23.

c. Construction

Developments in Concrete Pavement Design.* Willis D. P. Warren. Mun. & Co. Eng. Mar., '23.
Grades for Asphalt Pavements and Prevention of Creeping. Monroe L. Patzig. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Mar. '23.
Merits of Bar Reinforcements for Concrete Pavements. W. S. Edge. (From paper read before New Jersey Highway Assoc.) Can. Engr. Mar. 27, '23.
Pocket Strain Gage Gives Stresses in Concrete Roads.* A. T. Goldbeck. Eng. N. R. Mar. 29, '23.
How to Equip and Operate Local Gravel Pits. B. H. J. Kuelling. (Paper read before Am. Road Builders' Assoc.) Can. Engr. Apr. 17, '23; Mun. & Co. Eng. Apr., '23.
Conclusions Reached at Pennsylvania Conference of Representatives of 25 State Highway Departments. Mun. & Co. Eng. Apr., '23.
Results of U. S. Government Road Investigations.* A. T. Goldbeck. (Paper read before Am. Road Builders' Assoc.) Can. Engr. Apr. 3, '23.
Use of Marl as a Road Surfacing Material.* (From Bulletin of Univ. of Minnesota.) Eng. & Contr. Apr. 4, '23.
Headwalls for Pipe Culverts.* Howard See. Eng. N. R. Apr. 5, '23.
Methods for Determining Street Pavement Crowns.* F. S. Besson. Eng. N. R. Apr. 5, '23.
Bituminous Concrete and Penetration Surfaces. E. A. James. (Paper read before County & Township Engrs. & Road Superintendents.) Can. Engr. Apr. 10, '23.
Developments in Concrete Pavement Design in Iowa Counties. Raymond Zack. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. May, '23.
Worcester Pavements.* J. C. Blake. Bost. Soc. C. E. May, '23.
Fitchburg Pavements. David A. Hartwell. Bost. Soc. C. E. May, '23.
History of New Bedford Pavements. George H. Nye. Bost. Soc. C. E. May, '23.
Brookline Pavements.* Henry A. Varney. Bost. Soc. C. E. May, '23.
Cambridge Pavements.* Lewis M. Hastings. Bost. Soc. C. E. May, '23.
Development of Apparatus for Field Testing of Roads. H. F. Clemmer. (Paper read before Am. Good Roads Cong.) Can. Engr. May 1, '23.
Slab Design on Hills and for Irregular Crossings.* Gustave Reinberg. Eng. N. R. May 3, '23.
Modern Developments in Methods of Constructing Cement Concrete Pavements. E. G. Willemin. (Paper read before Conference on Highway Eng., Univ. of Mich.) Can. Engr. May 8, '23.
Operating Local Gravel Pits for Concrete Road Work. H. K. Kuelling. (Abstract of paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Mar., '23.
Road Construction in Victoria County, Ont. Can. Engr. May 22, '23.
Progressive Construction of Highways. C. M. Upham. (Paper read before Am. Good Roads Cong.) Can. Engr. May 22, '23.
Marl-Sand Road Construction in Minnesota. Eng. N. R. May 24, '23.
Advantages of Standard Specifications for Bituminous Materials. Prevost Hubbard. (Abstract of paper read before New Jersey State Highway Convention.) Can. Engr. May 29, '23.

- Design and Construction of Concrete Roads.* James Voshell and R. E. Toms. Can. Engr. Serial beginning June 5, '23.
- Athabasca "Tar Sands" for City Streets.* C. C. Sutherland. Can. Engr. June 5, '23.
- Construction Methods on a Canyon-Side Road in Wyoming.* R. L. Silver. Eng. N. R. June 7, '23.
- Simple Method of Banking Curves on Concrete Roads.* Arthur H. Gardiner. Eng. N. R. June 14, '23.
- Culverts and Small Bridges. E. L. Miles. (Paper read before Can. Good Roads Assoc.) Can. Engr. June 19, '23.
- Provincial Systems of Highways. George Hogarth. (Abstract of paper read before Can. Good Roads Assoc.) Can. Engr. June 19, '23.
- Reconstruction Macadam Roads. James Pearson. (Paper read before Can. Good Roads Assoc.) Can. Engr. June 19, '23.
- Note sur l'emploi du silicate de soude comme liant. (Note on the Use of Sodium Silicate as a Binder.) M. Guelle. Ann. P. et C. Jan., '23.

d. Maintenance

- Five Years Experience with Patrol Maintenance in Wisconsin.* J. T. Donaghey. (Paper read before Am. Road Builders Assoc.) Mun. & Co. Eng. Mar., '23.
- Developments in Bituminous Pavement Maintenance. B. C. Tiney. (Paper read before Univ. of Michigan.) Mun. & Co. Eng. Mar., '23.
- Ten-Year Test Shows Pavement Wear and Repair.* R. A. MacGregor. Eng. N. R. Mar. 29, '23.
- Maintenance of Macadam Roads with Bituminous Materials. H. S. Perry. (Paper read before Road School at Purdue Univ.) Mun. & Co. Eng. Apr., '23.
- Modern Developments in Maintenance of Concrete Pavements. Leroy C. Smith. (Abstract of paper read before Conference on Highway Eng. Univ. of Michigan.) Can. Engr. Apr. 17, '23.
- Road Drainage Practice. F. J. Ure. (Paper read before Conference of County and Township Road Engineers and Superintendents.) Can. Engr. Apr. 24, '23.
- Concrete Road Maintenance Methods and Tools. G. C. Dillmann. Eng. N. R. Apr. 26, '23.
- Maintenance Methods and Costs on Wayne County Roads.* Leroy C. Smith. (Extracts from paper read before Univ. of Michigan.) Eng. N. R. Apr. 26, '23.
- Repair and Maintenance of Boston Street Surfaces.* Edgar S. Dorr. Bost. Soc. C. E. May, '23.
- Notes on Roadway Surfacing and Maintenance Treatments, Newton.* Edwin H. Rogers. Bost. Soc. C. E. May, '23.
- Earth Road Maintenance in Iowa. W. H. Root. (Paper read before Am. Road Builders Assoc.) Can. Engr. May 1, '23.
- Blade Grader Work and Earth Road Maintenance in Iowa. W. H. Root. (Paper read before Am. Road Builders Assoc.) Eng. & Contr. May 2, '23.
- Salvage and Maintenance of Macadam Roads. W. A. Van Duzer. (Paper read before Am. Road Builders Assoc.) Can. Engr. May 8, '23.
- Les chaussées et trottoirs des rues de Paris.* (Roadways and Sidewalks of the Paris Streets.) I. Biette. Gen. Civ. May 19, '23.
- Maintenance of Highways. E. A. James. (Paper read before Can. Good Roads Assoc.) Can. Engr. June 19, '23.

e. Street Cleaning, Dust Prevention, Snow Removal

- Dust Suppression on Gravel and Macadam Roads. H. C. Smith. (Paper read before Purdue Univ.) Mun. & Co. Eng. Mar., '23.

g. Machinery and Tools

- Special Equipment for Repairing Road Crossings.* Clifford A. Elliott. Eng. & Contr. Mar. 21, '23.
- Road Machinery and Its Economic Aspect.* Fred L. MacPherson. (From paper read before Canadian Good Roads Assoc.) Can. Engr. Mar. 27, '23.

h. Vehicles, Automobiles, Traffic

- Some Post-War Problems of Transport.* John Audley Frederick Aspinall. Inst. C. E. 1921-22, Pt. 2.
- Traffic Regulation in Cities. Kane S. Green. Engrs. & Eng. Mar., '23.
- Light Motor Truck Haulage as Applied to the Construction of Concrete Highways.* A. E. Horst. Mun. & Co. Eng. Apr., '23.
- Arading Sidewalks of City Streets.* Charles Elcock. Engrs. & Eng. Apr., '23.
- Economic Study of Trucks for Road Construction.* (From paper read before Am. Road Builders Assoc.) Eng. N. R. Apr. 12, '23.
- Arcades to Relieve Street Traffic—New York City.* Arthur S. Tuttle. (Extract from report to Board of Estimate and Apportionment.) Eng. N. R. Apr. 19, '23.
- A Logical Method of Computing Motor-Vehicle Fees.* Robert C. Barnett. Eng. N. R. May 3, '23.
- Truck Overloads Threaten Life of City Pavements. Eng. N. R. May 10, '23.

x. Miscellaneous

- Iowa Transportation Problems and Suggested Solutions. C. C. Coykendall. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Apr., '23.
- Road Accounting Methods. E. L. Miles. (From paper read before County & Township Road Superintendents.) Can. Engr. Apr. 10, '23.
- City Controls Sub-surface Use of Public Streets.* Charles U. Powell. Eng. N. R. Apr. 26, '23.
- Reasonable Interpretation of State Highway Specifications in North Carolina. C. N. Conner. (From North Carolina Highway Bulletin.) Mun. & Co. Eng. May, '23.

- Plant Inspection of Asphaltic Paving Mixtures. W. J. Emmons. (From Bulletin of Agricultural and Mechanical College of Texas.) Eng. & Contr. May 2, '23.
 Standardized Bridges for Highways. C. A. Melick. (Paper read before Highway Eng. Conference, Univ. of Michigan.) Eng. & Contr. May 23, '23.
 Business Methods in Highway Contracting.* C. S. Hill. Eng. N. R. May 31, '23.

E. Bridges, Viaducts, and Arches

b. Iron or Steel Bridges and Viaducts

- Progress Report of the Special Committee on Impact in Highway Bridges.* Am. Soc. C. E. Mar. '23.
 Gerrard Street Steel Arch Bridge, Toronto.* J. S. Burgoyne and G. Alison. Can. Engr. Apr. 17, '23.
 Lengthening Bridge After Caving of Bank in Flood.* B. H. Faber. Eng. N. R. Apr. 19, '23.
 Special Harness Supports Spans.* Ry. Eng. & Main. May, '23.
 Check Bridge Reinforcement with Strain Gage.* H. S. Loeffler. Ry. Age. May 12, '23.
 Measurement of Structural Stresses.* F. Johnstone-Taylor. (From *The Tech Engineering News*.) Eng. & Contr. May 23, '23.
 Cantilever Highway Bridge Across the Ohio at Ironton.* J. F. Jackson. Eng. N. R. May 31, '23.
 Plate-Girder Design and Detailing—Notes from Practice.* Robins Fleming. Eng. N. R. June 14, '23.

d. Concrete and Reinforced Concrete Bridges and Viaducts

- The Comparison of Concrete Groined Arches as an Aid in Their Design.* Discussion. Philip O. Macqueen. Am. Soc. C. E. Mar., '23.
 Reinforced Concrete Footbridge at Neepsend, Sheffield.* Eng. Apr. 27, '23.
 New Bridge at Muskham on the Great North Road.* Engr. Mar. 23, '23.
 Building a New Concrete Bridge Over an Old One.* Eng. N. R. Apr. 12, '23.
 Economical Use of Concrete in Bridge Construction.* L. G. Holleran. Eng. & Contr. Apr. 25, '23.
 The Georgetown Bridge Over the Potomac.* Sci. Am. May, '23.
 Coal Mine Subsidence Damages Concrete Girder Bridge.* G. F. Burch. Eng. N. R. June 14, '23.
 Eisenbeton-Bogenbrücke mit Zugband über die Emme bei Gerlafingen.* (Reinforced Concrete Arch Bridge Tie Member Over the Emme near Gerlafingen.) Werner Luder. Schw. Bauz. May 5, '23.

f. Suspension Bridges. Transfer Bridges

- Hudson River Bridge at Bear Mountain.* Sci. Am. May, '23.
 Bridging the Hudson River at Bear Mountain.* Wilson Fitch Smith. Eng. N. R. May 10, '23.
 The Delaware River Bridge Between Philadelphia and Camden.* Ralph Modjeski. West. Soc. C. E. June, '23.
 Possibilities of the Modern Suspension Bridge for Moderate Spans.* O. H. Ammann. Eng. N. R. June 21, '23.
 Calcul des Ponts Suspensifs pour Voies Ferrées de 1 m 00.* (Design for Suspension Bridges for 1-meter Railroads. M. Lanna. Ann. P. et C. Nov.-Dec., '22.
 Le Pont à Transbordeur sur le Riachuelo à Buenos-Ayres.* (The Transfer Bridge over the Riachuelo at Buenos Ayres.) H. Guérin. Gen. Civ. Mar. 17, '23.
 Die Zähringerbrücke in Freiburg. der Neubau anstelle der grossen Hängebrücke.* (The Zähringer Bridge at Freiburg. the New Structure Replacing the Large Suspension Bridge.) Schw. Bauz. Apr. 21, '23.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes

- The Inchinnan Bridge at Renfrew.* Engr. Mar. 30, '23.
 Good Practice in the Design of Crane Runways.* Robins Fleming. Eng. N. R. May 24, '23.
 Grue pivotante et basculante de 60 tonnes, installée aux Chantiers navals d'Harfleur (Seine-Inférieure). (Sixty-Ton Revolving and Tilting Crane Installed at the Harfleur (Seine-Inférieure) Naval Shipyard.) Gen. Civ. Apr. 14, '23.

h. Computations, Tests, etc.

- Locomotive Loadings for Railway Bridges.* Discussion. D. B. Steinman. Am. Soc. C. E. May, '23.
 Calcul de l'arc a deux rotules.* (Calculation of the Two-hinged Arch.) Leon Legens. Gen. Civ. May 5, '23.
 Normblätter für Brückenbau. (Tables of Standards for Bridge Building.) K. Haberkalt. Oest. Ing. Arch. Ver. Feb. 23, '23.
 Zur Berechnung der einfachen und zusammengesetzten Brückenbalken.* (On the Calculation of Simple and Compound Bridge Girders.) Alexander Parenski. Oest. Ing. Arch. Ver. Apr. 6, '23.
 Die grossen Arbeiten der Schweizer Brückenbauingenieure auf dem Gebiet der Nebenspannungen und die daraus zu ziehenden Folgerungen.* (The Great Results of the Swiss Bridge Engineers in the Field of Secondary Stresses and the Deductions to be Drawn from Them.) Friedrich Hartmann. Oest. Ing. Arch. Ver. Apr. 20, '23.
 Zur Frage einer Hochbrücke Baden-Wettingen.* (On the Question of a Baden-Wettingen High Bridge.) Schw. Bauz. Mar. 17, '23.

x. Miscellaneous

- Problems in Highway Bridge Economics. Lewis M. Gram. (Paper read before Univ. of Michigan.) Mun. & Co. Eng. Mar., '23.

- Economics of Highway Bridge Problems. Lewis M. Gram. (Paper read before Univ. of Michigan.) Can. Engr. Apr. 3, '23.
 Old Bollman Truss Bridges on the Valley R. R. of Virginia.* Philip George Lang. Eng. N. R. Apr. 12, '23.
 The Renewal of Bridges.* B. P. Fletcher. (From *Journal of Permanent-Way Inst.*) Int. Ry. Eng. Assoc. May, '23.

F. Inland Waters

a. Natural Waterways (General Articles)

- Winds and Barometric Effects on the Great Lakes.* John F. Hayford. Eng. N. R. Apr. 12, '23.

c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings

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- Stand der Arbeiten zur Abschliessung und Trockenlegung der Zuidersee.* (Status of the Work of Closing In and Draining the Zuider Zee.) Rudolf Schmidt. Z. d. Bauver. Feb. 28, '23.
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- Amélioration de l'embouchure de Souline (Danube).* (Improvement of the Souline Mouth (Danube).) Ann. P. et C. Jan., '23.
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- Great Northern Builds New Dock at Superior.* H. A. Gerst. Ry. Age June 2, '23.
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G. Maritime Works

c. Vessels and Maritime Navigation. Lighthouses and Buoys. Various Signals

- Les chaudières marines. Chaudières cylindriques à retour de flammes, et chaudières aquatubulaires.* (Marine Boilers. Cylindrical Return-Flame Boilers and Water-Tube Boilers.) Maurice Demoulin. Gen. Civ. Apr. 7, '23.

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- Breakwater Construction, Toronto Island Shore.* John M. Wilson. Can. Engr. Apr. 10, '23.
- Rubble Mound Breakwater on Mattress Foundation.* Eng. & Contr. May 9, '23.

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- Comparaison entre les portes roulantes et les portes glissantes pour la fermeture des grandes écluses maritimes.* (Comparison between Rolling and Sliding Gates for Closing Large Maritime Sluices.) A. Bijls. Gen. Civ. May 5, '23.

- g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers. Salving the Avare.* Engr. Mar. 23, '23.
- Cable Net Used to Clear Boulders from Harbor Entrance.* C. C. Worsfold. Eng. N. R. Apr. 12, '23.
- The Moving of the "Vindictive".* Dudley E. J. Offord. Eng. May 11, '23.

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- British Port Methods.* Brysson Cunningham. Engrs. & Eng. Mar., '23.
- Die Rheln-Werft Walsum der Gutehoffnungshütte.* (The Walsum Rhine Shipyard of the Gutehoffnungshütte.) Z. d. Bauver. Mar. 28, '23.
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2. International Combustion Engine Automobiles

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x. Miscellaneous

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- Stream Pollution Measured in Terms of Sanitary Quality of Drinking Water.* Russell Suter. Am. W. W. Assoc. Mar., '23.
- Special Features of Recent Filter Plant Design.* Paul Hansen. Am. W. W. Assoc. Mar., '23.
- Microscopic Organisms in Reservoirs in Relation to the Esthetic Qualities of Potable Waters.* Charles Atwood Kofoid. Am. W. W. Assoc. Mar., '23.
- Use of Deep Well Water to Secure Alkalinity for Treating Surface Waters. Geo. P. Womble. Am. W. W. Assoc. Mar., '23.
- Germicidal Effect of Acid Mine Drainage in Pennsylvania. W. L. Stevenson. (Abstract of paper read before Pennsylvania W. W. Assoc.) Eng. N. R. Apr. 19, '23.
- Zinc Contamination in Drinking Water. Charles D. Howard. Am. W. W. Assoc. May, '23.
- The Use of Acids with Alum in Water Purification and the Importance of Hydrogen-ion Concentration.* John R. Baylis. Am. W. W. Assoc. May, '23.
- Progress Report of Committee on Practicable Loadings for Purification Processes.* Am. W. W. Assoc. May, '23.
- Construction and Operation of Warren, Ohio, Water Purification Plant. S. N. Vance. Mun. & Co. Eng. May, '23.
- Preparation of Water for Filtration.* F. A. Dallyn and A. V. Delaporte. Can. Engr. May 8, '23.
- Water Softening at Columbus, Ohio.* Charles P. Hoover. Eng. & Contr. May 9, '23.
- New Water Purification Plant at Norfolk, Virginia.* Eng. N. R. May 10, '23.
- Filter and Pumping Plant at Dunnville, Ont.* E. H. Darling. Can. Engr. May 15, '23.
- Detroit 320-M. G. D. Filtration Plant is World's Largest.* Theodore A. Leisen. Eng. N. R. May 17, '23.
- Water Filtration Plant for Omaha Metropolitan District.* F. P. Larmon. Eng. N. R. May 17, '23.
- Aeration Experiments for Removal of Carbonic Acid.* Wellington Donaldson. Eng. N. R. May 17, '23.
- Railway Water Treatment Plants and Their Operation. Fred D. Yeaton. Eng. N. R. May 17, '23.
- Water Softening at a Small Cost. Charles P. Hoover. (From paper read before Indiana Sanitary Supply Assoc.) Can. Engr. May 22, '23.
- Uncontrolled Pollution of Bogota Water Supply.* Eng. N. R. May 24, '23.
- Swimming Pool Standards.* Arthur M. Crane. (Paper read before Am. Assoc. for Promotion of Hygiene and Public Baths.) Eng. & Contr. June 13, '23.
- Iron Removal from Public Water Supplies.* A. Elliott Kimberly. (From paper read before Ohio Conference on Water Purification.) Eng. & Contr. June 13, '23.
- Second Water Purification Plant for Dallas, Texas.* Eng. N. R. June 14, '23.
- Bedeutung des Chlorgasverfahrens für die Trinkwasserversorgung.* (Importance of the Chlorine Gas Process for the Drinking Water Supply.) H. Selter and W. E. Hilgers. Gesund. Ing. Mar. 24, '23.
- Der Nachweis des Bacterium coli im Trinkwasser. (The Detection of the Bacterium Coli in Drinking Water.) W. Olszewski and H. Kohler. Gesund. Ing. March 31, '23.

e. Distribution of Water

- The Bloomington, Ind., Water Supply Problem. Paul Hansen. (Paper read before Indiana Sanitary and Water Supply Assoc.) Mun. & Co. Eng. Mar., '23.
- Present Day Tars for Pipe Coating. W. R. Conard. Am. W. W. Assoc. Mar., '23.
- Water Waste and Results of 100 Per Cent. Metering. A. E. Walden. (Abstract of paper read before Engrs.' Club of Baltimore.) Eng. & Contr. Apr. 11, '23.
- How the Illinois Central Handles Its Water Service.* David A. Steel. Ry. Eng. & Main. May, '23.
- Progress Report of Committee on Methods and Records of Water Waste Control.* Am. W. W. Assoc. May, '23.
- Some Experiences with Water Meters at Greenville, Tennessee.* J. W. McAmis. Am. W. W. Assoc. May, '23.
- Underground Leakage and Its Relation to Mains and Services. Thomas F. Wolfe. Am. W. W. Assoc. May, '23.
- Progress Report of Committee on Industrial Wastes in Relation to Water Supply. Am. W. W. Assoc. May, '23.
- Steel Pipe for Large Water Mains. Theodore A. Leisen. Am. W. W. Assoc. May, '23.
- Pump House and Intake Pipe Line Construction.* Eng. & Contr. May 9, '23.
- Considerations in Design of Open Ditches.* Geo. A. McCubbin (Assoc. of Ontario (Canada) Land Surveyor). Eng. & Contr. May 9, '23.
- Right Method of Paying for Water for Fire Protection.* Caleb Mills Saville. Eng. N. R. May 17, '23.
- Building Additional Siphons of Catskill Aqueduct.* Thaddeus Merriman. Eng. N. R. May 17, '23.

- Overhauling Outgrown Water-Works at Fort Smith, Ark.* Wynkoop Kiersted, Jr. Eng. N. R. May 17, '23.
 Hydraulic Rams Provide Water Supply on Canadian National.* L. H. Robinson. Ry. Eng. & Main. June, '23.
 Einige Erfahrungen beim Bau und Betrieb von zentralen und Einzel-Wasserversorgungen. (Some Experiences During the Building and Operating of Central and Private Water Supplies.) A. Reich. Gesund. Ing. Mar. 3, '23.
 Berechnung von hölzernen, aus Lamellen (Dauben) zusammengesetzten Druckrohrleitungen.* (Calculation of Wooden High-Pressure Pipe Constructed of Plates (Staves).) F. Schmitt. Oest. Ing. Arch. Ver. Mar. 9, '23.

f. Drainage of Land

- Records of Walking Dredge Work in Delta Land Drainage.* Albert S. Fry. Eng. N. R. Mar. 29, '23.
 Flood Conditions and Land Filling at Cairo, Ill.* Eng. N. R. Apr. 5, '23.
 Principal Features in Design of Open Ditches.* Geo. A. McCubbin. (Paper read before Assoc. of Ontario Land Surveyors.) Can. Engr. Apr. 17, '23.
 The Standardisation of Drainage Methods, Principles and Details.* A. Palmer. Inst. Mun. & Co. Engrs. May 8, '23.
 Drainage Feature of Land Reclamation.* E. F. Drake. Can. Engr. June 12, '23.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Curing a "Sick" Sewer System at Independent, Missouri. Leon B. Reynolds. Mun. & Co. Eng. Mar., '23.
 Design of Storm Overflow Sewers, Hamilton, Ont.* H. S. Phillips. Can. Engr. Mar. 27, '23.
 Rehabilitating Old Sewer Systems. William E. Stanley. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Apr., '23.
 Application of the Drop-Down Curve in Chicago Sewers.* C. D. Hill. Eng. N. R. Apr. 19, '23.
 The Ocean Out-Fall Sewer Syphon Under the Middle Harbour, Sydney, N. S. W. Eng. May 4, '23.
 Einheitliche Grundlagen für die Berechnung von Regenwasserkanälen.* (Uniform Principles for Calculating Rain Water Pipes.) Erich Thormann. Z. d. Bauver. Feb. 28, '23.
 Normen für Kanalisationsbauteile.* (Standards for Sewer Construction Parts.) Gesund. Ing. March 31, '23.
 Normblattentwürfe über Kanalisationsbauteile.* (Standard Design Sheets for Sewer Accessories.) Roch. Gesund. Ing. Apr. 7, '23.

b. Sewage Disposal. Purification

- Microbiology and Theory of Activated Sludge.* A. M. Buswell and H. L. Long. Am. W. W. Assoc. Mar., '23.
 Complete Sewage Treatment for City of 3 000, Delavan, Wis.* W. A. Peirce. Mun. & Co. Eng. Mar., '23.
 New System of Sewage Treatment at Graham, Texas.* Henry E. Elrod. Eng. N. R. Apr. 5, '23.
 Winter Concrete Work on Large Sewage Plant.* Ralph A. Lingley. Eng. & Contr. Apr. 11, '23.
 Sewage Disposal Plant at Crystal Beach, Ont.* E. H. Darling. Can. Engr. Apr. 17, '23.
 The Sanitary District of Chicago.* Langdon Pearce. West. Soc. Engrs. May, '23.
 Sewage Disposal and the Chicago Problem.* Harrison P. Eddy. West. Soc. Engrs. May, '23.
 Report on Sewage Disposal at Hamilton, Ont.* Can. Engr. May 1, '23.
 Imhoff Tank and Sprinkling Filter Studies at Plainfield Works.* William Rudolfs. (Abstract read before New Jersey Sewage-Works Assoc.) Eng. N. R. May 3, '23.
 Importance of Oxygen and Stirring for Activated-Sludge Growth.* Eng. N. R. May 10, '23.
 Sewage Disposal Plant for Trenton, N. J. George A. Johnson. (Abstract of paper read before Engrs. Club of Trenton.) Can. Engr. May 29, '23.
 Los Angeles Sewage Disposal Plans Assuming Final Form.* W. T. Knowlton. Eng. N. R. June 7, '23.
 Les Procédés Actuels de Traitement des Eaux d'Égout. (Present-Day Processes for Treating Sewage.) Gen. Civ. Mar. 10, '23.
 Herabsetzung der Bau- und Betriebskosten für Abwasser-Kläranlagen.* (Reduction of the Construction and Operating Costs for Sewage Purification Plants.) G. Strassburger. Gesund. Ing. Mar. 10, '23.
 Die Abwasser der Textilindustrie in Russland. (The Waste Water of the Textile Industry in Russia.) W. Drossdorf. Gesund. Ing. Apr. 28, '23.

c. Refuse Disposal

- The Design and Economics of City Refuse Destructors.* F. A. Combe. Eng. Inst. Can. Apr., '23.
 Modern Methods of Garbage Disposal. Samuel A. Greeley. (From *The American City Magazine*.) Can. Engr. Apr. 24, '23.
 Collection and Disposal of Municipal Refuse. Earle L. Waterman. (Paper read before Iowa Eng. Soc.) Can. Engr. May 8, '23.

K. Heat Engines

a. Steam Engines. Boilers

- High-Temperature and High-Pressure Steam Lines.* B. N. Broido. Mech. Eng. May, '23.

b. Steam Turbines

The Cross-Flow Impulse Turbine.* Mech. Eng. May, '23.

c. Gas and Oil Engines

Fuel Oil Engines vs. Steam Engines for Small Water Plants.* George T. Prince. Am. W. W. Assoc. Mar., '23.

Solid-Injection Oil Engine Investigations in Sweden.* Edvin Lundgren. Power. May 1, '23.
La station centrale à moteurs à gaz pauvre et à gazogènes au bois de la mine Lonely. (Rhodésie méridionale.) (The Central Station with Low-Grade Gas Engines and Wood-Gas Producers of the Lonely Mine (Southern Rhodesia).) Gen. Civ. Apr. 21, '23.

L. Electricity**a. Production of Electricity****2. Magneto and Dynamo. Electric Machines**

Berechnung der Schwingungserscheinungen an Turbo-Dynamos.* (Calculation of the Vibrations in Turbo-Generators.) J. Gelger. Ver. deu. Ing. Mar. 24, '23.

b. Distribution and Transmission of Electricity**1. Power Plants**

The Lakeside Electric Power Station at Milwaukee.* Engr. Serial beginning Apr. 13, '23.

New Marysville Plant, Detroit Edison Co.* C. Harold Berry. Power. May 29, '23.

The Benson Super-Pressure Plant—Its Scientific Basis.* P. W. Swain. Power. May 29, '23.

Municipal Power Plant, Lansing, Michigan.* O. E. Bulkeley. Power. June 19, '23.

2. Long-Distance Transmission of Energy

Electric Transmission of Power for Propelling Machinery.* W. J. Belsey. (Abstract

of paper read before Inst. of Engrs. & Shipbuilders in Scotland.) Engr. Apr. 27, '23.

Cable Geometry and the Calculation of Current-Carrying Capacity.* Donald M. Simons.

A. I. E. E. May, '23.

Le réseau d'Etat de transport d'énergie électrique dans les régions libérées.* (The State

Network for Electric Power Transmission in the Liberated Regions.) Gen. Civ. May 5, '23.

3. Distribution and Wiring of Electricity

The Electrical and Illuminating Equipment of the Eastman Theatre and School of

Music.* Frederick A. Mott and Lloyd A. Jones. A. I. E. E. June, '23.

6. Safety of Electric Distribution Systems. Laws and Regulations

Blitzschutz für Freileitungen mit besonderer Berücksichtigung der Erfahrungen in

Südafrika.* (Lightning Protection for Overhead Conductors with Special Reference to

Experiences in South Africa.) Hermann Bohle. Ver. deu. Ing. Mar. 3, '23.

d. Mechanical Uses of Electricity**1. Electric Motors**

Der Leistungsfaktor im Fabrikbetrieb.* (The Power Factor in Factory Operation.) L.

Schüler. Ver. deu. Ing. May 19, '23.

x. Miscellaneous

Electricity for Heating Buildings.* G. Gordon Gale. Eng. Inst. Can. Apr., '23.

Heating a Cotton Weave Shed by Electricity.* C. T. Guildford. A. I. E. E. June, '23.

e. Electro-Chemistry and Electrometallurgy

Nouveau Four Electrique à Induction pour les Métaux non Ferreux. (New Electric

Induction Furnace for Non-Ferrous Metals.) Emile Demenge. Gen. Civ. Mar. 3, '23.

f. Signals and Communication

Public Address Systems.* I. W. Green and J. P. Maxfield. A. I. E. E. Apr., '23.

Radio and Research. Otto B. Blackwell. Am. Soc. C. E. Mar., '23.

Machine Switching Telephone System for Large Metropolitan Areas.* E. B. Craft and

others. A. I. E. E. Apr., '23.

The Paillophone.* C. A. Hoxie. A. I. E. E. May, '23.

La Radiotéléphonie et la Réception des Concerts par T. S. F.* (Radiotelephony and the

Receiving of Concerts by Wireless.) J. Lynn. Gen. Civ. Serial beginning Mar. 3, '23.

Schweizerische Krarup-Telephon-Kabel.* (Swiss Krarup Telephone Cable.) K. Schild.

Schw. Bauz. Mar. 10, '23.

Les soins à donner aux batteries d'accumulateurs des postes radiotéléphoniques.* (Caring

for Storage Batteries of Radiotelephony Stations.) Gen. Civ. Mar. 31, '23.

Le téléstéréographe Bellin, pour la transmission à distance des photographies* (The Bellin

Telestereograph for the Transmission of Photographs to a Distance.) P. Calfas. Gen.

Civ. Apr. 21, '23.

Funkanlagen mit Lichtbogensendern.* (Radio Stations with Arc Senders.) C. W. Kollatz.

Ver. deu. Ing. Mar. 10, '23.

Die automatischen Telephon-Anlagen der Rhätischen Bahn.* (The Automatic Telephone

Plant of the Rhaetian Railroad.) Georg Foerster. Schw. Bauz. May 26, '23.

x. Miscellaneous

Elektrische Dampferzeugung.* (Electric Generation of Steam.) Edgar Zeulmann. Ver.

deu. Ing. Jan. 6, '23.

M. Architecture

a. Educational, Government and Scientific Buildings

Der Wiederaufbau des kreiszerstörten Rathauses in Taplau in Ostpreussen.* (The Reconstruction of the Townhall at Taplau in East Prussia, Destroyed During the War.) Z. d. Bauver. Mar. 7, '23.

b. Business and Commercial Buildings

A Study of Office-Building Live-Loads.* Eng. N. R. Mar. 29, '23.
Concrete Frame and Exterior for High Tower Building.* W. J. Knight. Eng. N. R. Apr. 5, '23.
Floor Loads in Office Buildings.* Eng. & Contr. Apr. 25, '23.
Wettbewerb für Entwürfe zu einem Verlag- und Druckereigebäude des "Staatsverlag" in Barmen.* (Competition for a Publishing and Printing Building for the Barmen "Staatsverlag".) Wilhelm Habel. Z. d. Bauver. Mar. 14, '23.

c. Residences, Hotels

An Ingenious and Beautiful Remodeling of Old Houses.* Harold Donaldson Eberlein. (From *The Architectural Record*.) Eng. & Contr. Mar. 28, '23.
The Anatomy of the Concrete House.* Leslie H. Allen. Cem. Eng. Apr. '23.
Genossenschafts-Wohnbauten in Prelaz bei Lausanne.* (Community Dwelling-Houses in Prelaz near Lausanne.) Gilliard and Godet. Schw. Bauz. Apr. 7, '23.
Das Verkleinerte Landhaus.* (The Small Country House.) Hermann Muthesius. Schw. Bauz. Apr. 21, '23.
Der Umbau des Burgtellers in Jena.* (The Restoration of the Burgteller in Jena.) E. Högg and R. Müller. Z. d. Bauver. May 9, '23.

d. Storage Buildings

New Grain Terminal, Locust Point, Baltimore & Ohio Ry. Rev. Apr. 14, '23.
New Railway Grain Terminal at Baltimore, Md.* Eng. & Contr. May 16, '23.

e. Hospitals and Asylums

Lüftungsfragen im heutigen Krankenhausbetrieb vom Standpunkt des Krankenhausdirektors. (Ventilation Problems in Modern Hospital Management from the Viewpoint of the Hospital Superintendent.) Grober. Gesund. Ing. May 12, '23.

f. Factories and Mill Buildings

Elne neuzeitliche Tafelglashütte.* (A Modern Plate Glass Works.) R. Knorrn. Ver. deu. Ing. May 26, '23.

g. Other Buildings

The Stadium in Wembley Park.* Engr. Apr. 6, '23.
New Gasworks at Carlisle.* Engr. Serial beginning May 25, '23.
Klassizistische Holzbauten in Drontheim.* (Classic Wooden Buildings in Drontheim.) Jakob Holmgren. Z. d. Bauver. Apr. 11, '23.
Erweiterung des Zürcher Strandbades.* (Extension of the Zurich Bathing Beach.) Schw. Bauz. Mar. 17, '23.
Der Sudturm des Magdeburger Domes und die Lage der ehemaligen Nikolalkirche.* (The South Tower of the Magdeburg Cathedral and the Situation of the Former Nikolai Church.) Z. d. Bauver. Apr. 25, '23.

h. Roofs and Domes

Repairing of Roof Trusses in Toronto City Hall.* Can. Engr. Apr. 24, '23.
Method of Repairing Roof Trusses.* Eng. & Contr. May 23, '23.

i. Fire Protection

Fire Resistance of Building Columns.* S. H. Ingberg. (Paper read before National Crushed Stone Assoc.) Eng. & Contr. Apr. 25, '23.
Ueber vorbeugenden Brandschutz. (On Preventive Fire Protection.) Robert Scherer. Oest. Ing. Arch. Ver. Apr. 20, '23.
L'éclairage naturel des musées de peinture.* (The Natural Lighting of Art Museums.) Gen. Civ. May 5, '23.

x. Miscellaneous

Tageslichttechnisches.* (Daylight Technicalities.) A. Burchard. Gesund. Ing. Apr. 14, '23.
Tagung für wirtschaftliches Bauen in München. (Meeting upon Economical Building in Munich.) A. Gut. Z. d. Bauver. May 2, '23.
Architektur der Insel Santorin.* (Architecture of Santorin Island.) Peter Mayer. Schw. Bauz. May 19, '23.

N. Landscape Engineering

The Engineer and City Planning. George H. Norton. Am. Soc. C. E. Mar., '23.
Regional Planning. Nelson F. Lewis. Am. Soc. C. E. Mar., '23.
Zoning—Its Progress and Application. Morris Knowles. Am. Soc. C. E. Apr., '23.
Parks and Parkways.* Linn White. Am. Soc. C. E. Apr., '23.
City Planning.* Discussion. William T. Lyle, E. M. Walker, Charles W. Leavitt, Frederic A. Delano, Charles N. Lowrie, M. W. Weir, E. A. Fisher, Rudolph Hering, Harold M. Lewis, George P. Hemstreet, George A. Soper, Nelson F. Lewis, and Harold A. Caparn. Am. Soc. C. E. Apr., '23.

- Automobile Tourist Camping Grounds. Calvert S. Winsborough. (From paper read before Univ. of Illinois.) Eng. & Contr. May 2, '23.
 City Planning and Zoning in Old Communities. George H. Herrold. (Abstract of paper read before Minnesota Federation of Architectural and Eng. Societies.) Eng. N. R. May 2, '23.
 Chicago Adopts Zoning Ordinance for Entire City.* Eng. N. R. May 31, '23.
 Ausgestaltung der Aussichtsterrasse zum "Sonnenberg" in Zurich.* (Planning of the "Sonnenberg" Terrace in Zurich.) Schw. Bauz. Apr. 28, '23.
 Die Zukunft der Grosstadt. (The Future of the Large City.) Karl Scheffler. Schw. Bauz. May 5, '23.

O. Administration. Legislation. Economics. Statistics

b. Economic Question of a General Character; Valuations, etc.

- Contractors' Overhead Expense. Gerhardt F. Meyne. (From paper read before Assoc. Bldg. Contrs. of Illinois.) Eng. & Contr. May 23, '23.
 Wirtschaftliche Zukunft schwachvalutig gebauter Wasserkraftwerke. (Economic Future of Water Power Plants Built with Cheap Currency.) Leiner. Oest. Ing. Arch. Ver. Mar. 23, '23.

d. Administrative and Financial Management of Means of Communication

5. Railroads and Street Railroads

- Résultats obtenus en 1921 sur le réseau des Chemins de fer de l'Etat en France d'après les comptes d'Administration publiés pour ladite année.* (Results Obtained During 1921 on the State Railway Lines in France, According to the Government Accounts Published for that Year.) Rev. Gen. Adv. '23.
 Zur Reorganization der Schweizer Bundesbahnen, insbesondere zur Neubesetzung der Kreisdirektion III. (On the Reorganization of the Swiss Federal Railroads, Especially on the New Appointment of Board of District III.) Schw. Bauz. May 26, '23.

g. Engineering Education

- A New Project for the Society for the Promotion of Engineering Education. Charles F. Scott. Am. Soc. C. E. Mar., '23.
 Engineering Foundation: Division of Engineering of National Research Council; Their Origin, Work, Plans, Needs. Alfred D. Flinn. Am. Soc. C. E. Mar., '23.
 The Research Activities of the American Society of Civil Engineers. Arthur N. Talbot. Am. Soc. C. E. Mar., '23.
 The Outlook for the Engineering Schools of the Middle West. William G. Raymond. Am. Soc. C. E. Mar., '23.
 Co-Operation of National Engineering Societies in Engineering Education. John L. Harrington. Am. Soc. C. E. Mar., '23.
 Engineering Research. Discussion. Clemens Herschel, William G. Atwood, H. H. Rousseau, W. C. Cushing, Charles Rufus Harte, F. E. Schmitt, and Henry Goldmark. Am. Soc. C. E. Apr., '23.
 Engineering Education: Discussion. Robert Fletcher, F. B. Sanborn, J. K. Finch, George F. Swain, C. M. Spofford, Dugald C. Jackson, Theodore T. McCrosky, T. Chalkley Hatton, J. C. Ralston, Milo S. Ketchum, W. E. Wickenden, Charles F. Scott, Sydney Wilmot, H. R. Buck, A. B. McDaniel, and R. L. Sackett. Am. Soc. C. E. Apr., '23.
 The Objective in Engineering Education. Magnus W. Alexander. Am. Soc. C. E. Apr., '23.
 Zur Ingenieurerziehung. (On Engineering Training.) G. M. Strohl. Ver. deu. Ing. Apr. 28, '23.
 Mapping From the Skies.* George H. Dacy. Sci. Am. May, '23.
 Ueber die Stellung der Baumechanik in der heutigen wissenschaftlichen Technik. (On the Place of Structural Mechanics in Present Day Scientific Technology.) Alex. Hasch. Oest. Ing. Arch. Ver. May 4, '23.